# Railway Age

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## *Will the Subjects Be Exhausted?*

*AFTER* the American Railway Engineering Association had been in existence for four or five years the opinion was freely expressed that the association would soon be hard pressed for subjects for consideration in view of the interest shown by members in the work of the association and the number of investigations that were then being brought to a conclusion. Although the association has increased steadily in size, in the number of committees and in the diversity of subjects considered, this thought is seldom heard expressed now. Rather, the opinion now prevails that the science of railway construction and maintenance is expanding so rapidly that there is no end of work in sight. The demand for refinements in maintenance practices is growing so constantly that new opportunities are being offered the association for collective study and investigation in greater number than ever before. It will be many years before the association's activities are curbed by lack of work to be done.

## *A Unique Organization*

*THE* American Railway Engineering Association is a unique organization in a number of ways. In no way does it stand out more prominently than in the volume and uniformly high character of its work. The volume of this work is evidenced by the fact that the proceedings of the last convention comprised 1,432 pages. Its success is due to its committee organization and to the morale and esprit de corps which have been established in these committees. Membership on them is prized and the benefits accruing to the individual from committee work are so generally realized that the association does not tolerate those who are indifferent to their assignments. The work of the association is divided among 23 standing committees on which 637 members are enrolled. These committees held 72 meetings during the last year with a total attendance of 964. Only one committee held only one meeting and only five other committees held as few as two meetings, others holding as many as five or six meetings. These are indicative of the interest taken in the work of the association and account for the vast amount of valuable information which has become so great as to create a serious problem in providing proper opportunity for adequate discussion of it.

## *Visit the Exhibit*

*THE* National Railway Appliances Association is to be congratulated on its exhibit, for no one can enter the Coliseum and traverse the numerous aisles without being impressed with the painstaking effort that has been required to make it what it is. This comment applies not only to the displays of the individual exhibits for

each is characterized by a definite individuality, but also to the general effect, that of a harmonious whole. Barring a small number of newcomers, the members of the N. R. A. A. are seasoned exhibitors. With an experience covering many years in the conduct of these shows, they have learned what to do and what not to do in the conduct of such a project. This knowledge has taken the form of certain written and unknown laws of the association which insure that each exhibitor is accorded the maximum facility in the use of his space without taking any unfair advantage of his neighbors, but their prime purpose is to make the exhibit of greatest value to the visitor.

The conduct of an exhibit of this kind year after year is not without its serious problems, chief among which is the necessary degree of variation that will insure against the impression of sameness—to obviate the criticism that it is the "same old stuff." Obviously only a relatively small proportion of the devices shown can be distinctly new. Consequently the difference between one exhibit and another must be effected principally by the manner in which the devices are displayed and demonstrated. As to this phase of the exhibit, the show is a pronounced success. There is every evidence that the exhibitors have been alive to their opportunities and have made the exhibit not only more instructive but more interesting.

## *Stabilization of Employment*

AN interesting fact which most people have overlooked is that while the question whether employment in railway service can be stabilized has been under discussion, the stabilization of employment actually has been making progress. In 1923 the number of employees in the maintenance of way and structures department of the Class I roads varied from a minimum of 326,627 in February to a maximum of 471,185 in August, the difference between these figures being 144,558. In 1924 the number of employees in the maintenance of way department varied from a minimum of 335,449 in February to a maximum of 428,917 in August, the difference between these figures being only 93,468. The minimum figure for 1924 was almost 9,000 more and the maximum figure about 42,000 less than in 1923. These figures derive added significance from the fact that fluctuations of traffic and total earnings were much greater in 1924 than in 1923. The number of maintenance of way employees was larger in the first four months of the year 1924 than in the corresponding months of 1923 and smaller in the remaining eight months. Both these facts and statistics regarding maintenance of way expenditures show that active maintenance work was begun earlier and carried on more uniformly in 1924 than in 1923. The figures indicate that the same policy is being followed in 1925. Between August and December, 1923, the reduction in the number of maintenance employees was over 115,000. Between August and December, 1924, the reduction was only 87,000. The fluctuations are still too large but it is gratifying to know that real progress is being made in reducing them.

# Prospects of Business

THERE is no subject in which railway officers and railway supply men are more interested than the probable future of railway traffic and earnings. The expenditures for maintenance, equipment and improvements in the fixed properties which will be justified and probably will be made depend upon future business. Predictions regarding business are hazardous. As a matter of fact, however, they must be and are constantly made. The railroad or other business concern which does not act constantly in anticipation of future business will be a financial failure. The railway officer or other business man who acts in anticipation of future developments does not have to make his predictions public, however, and therefore cannot always have their soundness checked up by other people. On the other hand, it is part of an editor's business to publish his predictions and if they turn out badly everybody can know it.

The *Railway Age* has ventured to make some predictions regarding railroad business in the past and will continue to take the chance of making them in future. Last summer when there had been a sharp decline of traffic and earnings we predicted a large increase in them in the fall and a relatively still larger increase in net operating income. That prediction was justified by an increase of 35 per cent in freight business between mid-summer and October and by the earning in the last four months of the year of over 20 per cent more net operating income than in the last four months of 1923.

We also ventured to predict a substantial increase in freight business in 1925 over all preceding years. Thus far developments have justified this prediction. Last year's slump in business began late in March. Car loadings in January and February of last year exceeded those of any previous year, and gross and net returns were the largest in February ever known in that month. Nevertheless, car loadings for January and February of this year substantially exceeded those of last year. General business conditions are promising and there is still good reason for expecting the freight business of this year to exceed all previous records. Operating expenses are lower in proportion to earnings, and the percentage of net return being earned is larger, than at any time since 1917. There is at present no prospect of reductions of rates or, consequently, of reductions in the net return being earned.

The expenditures made by the railways for improvements, equipment and supplies usually in the past have been determined by the net return earned, rising and falling with it. In view of the conditions actually existing, and advance information furnished to us by the railways, we have predicted unusually large purchases by the railways this year. No "boom" has been predicted and it is to be hoped there will not be any. What is needed in both the railway and the supply industries is greater stabilization of purchases instead of the huge reductions in bad years and the huge increases in good years that occurred in the past. In spite of the large freight business being handled reports regarding locomotive and car conditions indicate that the railways still have a good deal of surplus capacity. Sufficient capital expenditures ought to be made to enable them at all times to handle even the peak of business without congestion and delays. The real test of their capacity will come next fall. If traffic and net return continue to increase the railways undoubtedly will increase their expenditures for improvements and equipment accordingly. The year 1925 still promises to be a very good one for both the railways and the railway equipment and supply companies.

*The Congress Hotel, the Convention Headquarters*

## An Early Start

**The attention of the members of the American Railway Engineering Association is called to the fact that the convention will be called to order promptly at nine o'clock this morning. In view of the heavy program which is to be presented, it is to be hoped that the members will make a special effort to be present at that hour.**

* * *

Galen Wood, chemist at the Port Reading creosoting plant of the Central Railroad of New Jersey and the Reading has resigned after seven years' service in that position to engage in private practice as a consulting chemical engineer, with office at Philadelphia.

* * *

Those attending the convention this year will sympathize with Colonel W. G. Arn, assistant chief engineer of the Illinois Central, and an active member of the association, who is confined in the Illinois Central hospital, Chicago, as the result of an operation. Reports indicate that he is doing nicely, but he will not be able to leave the hospital for a couple of weeks.

* * *

The members of the Executive committee and the chairmen of committees of the Roadmasters and Maintenance of Way Association will meet at the Auditorium hotel at 9:30 Wednesday morning to consider the tentative reports of the committees and other business. All members of that association are invited to attend this meeting.

* * *

Members of the association will be interested in learning of the recent retirement of G. A. Mountain from active service as chief engineer of the Board of Railway Commissioners of Canada, a position which he has occupied for a long period. Mr. Mountain has been succeeded by T. L. Simmons, assistant chief engineer of the board, whose former position in turn has been filled by H. A. K. Drury, division engineer at Winnipeg, Man. E. T. Kerr, division engineer at Calgary, Alta., has been transferred to Winnipeg to succeed Mr. Drury.

* * *

Friends of George M. Hogan of the Sellers Manufacturing Company, will be pleased to learn of his recent advancement from secretary and general sales agent, with headquarters at Chicago, to vice-president. Mr. Hogan will be located in Chicago in his new position. He has been in the employ of the Sellers Manufacturing Company continuously since 1906 when he entered service as a clerk at the Mayfair (Chicago) plant. His wide acquaintance in the maintenance of way and track supply field has come about since he entered the sales department of the company in October, 1912.

* * *

Among the early arrivals yesterday were W. H. Kirkbride, chief engineer of the Southern Pacific, and George W. Rear, engineer of bridges. Mr. Kirkbride has just returned from a trip over the Southern Pacific's lines along the west coast of Mexico. Mr. Kirkbride spent six days going over these properties with C. R. Harding, consulting engineer of the Southern Pacific system. He also went over approximately 20 miles of the 100-mile extension from Tepic to La Quemada by rail and then traveled 40 miles beyond the end of track by automobile. Mr. Kirkbride speaks enthusiastically of the agricultural possibilities of this area which is now being provided with transportation facilities for the first time.

* * *

The members of the Executive committee and other members of the American Bridge and Building Association will meet for lunch in the dining room of the Davis' store (formerly Rothschilds) at 12:15 noon, Wednesday. The Committee on Arrangements will report on the selection of the hotel for the convention headquarters for the meeting at Buffalo next October. Members who plan to attend should notify F. E. Weise, assistant secretary, office of chief engineer, C. M. & St. P., room 802, New Union station, so that proper arrangements can be made for lunch.

* * *

D. J. Brumley, chief engineer, Chicago Terminal Improvements, Illinois Central, will describe these improvements in a paper which he will read before the Western Society of Engineers at their rooms in the Monadnock block, Van Buren and Dearborn streets, this evening. This project, which will involve the expenditure of more than $100,000,000 ultimately, involves many interesting engineering problems including the utilization of air rights and the substitution of electricity for steam for freight as well as passenger service. Members of the American Railway Engineering Association are invited to attend this meeting. It will begin promptly at 7:00 o'clock.

* * *

In its report which will be presented this morning, the Roadway Committee describes a number of tests which have been made on corrugated metal culverts during the past year and outlines some further tests which it plans to make to determine the earth pressures to which culverts are subjected. These latter tests will be made on culverts to be installed under tracks on the new line of the Illinois Central now under construction south of Edgewood, Ill., this change in location having been made necessary by the delay in the inauguration of the work on the line of the Pennsylvania to which reference was made in the committe's report. In order that the members may become familiar with the nature of these tests which will be made with the aid of Goldbeck pressure cells, the committee has borrowed from the United States Department of Agriculture an exhibit of a skewed arch model placed on these pressure cells and also a scale using the Goldbeck scale for weighing. This exhibit has been placed in the lobby adjacent to the convention room where members may examine it. In view of the importance of the tests which will be made, the committee is

desirous that as many members as possible familiarize themselves with the Goldbeck cells and the method of their operation.

## Playing the "Joker" Wild

E. R. Lewis, the genial principal assistant engineer of the Michigan Central, and a dignified member of the Committee on Track—this means the same man, like the "lawyer and an honest man" inscribed on the same mortuary tablet—there is only one of him—calls attention to the cartoon used as a column filler on page 314 of *Railway Age* of January 31. The cartoon

A DOUBLE 'CROSSING' GAME
"I'LL TAKE A CHANCE AND BET FIVE PASSENGERS AND A CAR"
"I'LL SEE YOU AND RAISE WITH A LOCOMOTIVE AND TEN CARS"
PLAY SAFE! CROSS CAUTIOUSLY.

**He Takes the Pot**

was originally executed by a railroad man and Mr. Lewis regrets that both the railroad man and the newspaper men who handled its publication, while hitting the railroad grade crossing point of attack accurately, at the same time displayed so great ignorance of the great American game illustrated in the cartoon. It seems that in making one of the players say, "I **raise** you and **see** you with a locomotive of ten cars," the artist put him in the category of the disordered cuckoo clock which "kooed" before it "cucked." We can only regret that the exigencies of getting out a large weekly publication in the face of an approaching issue of four **Daily** editions should have caused a temporary lapse in our recollection of the niceties of the great game. By the way of amends and with a view to helping along the cause of "Cross Crossings Cautiously," the cartoon is herewith republished with what is believed to be the correct interpretation of the remark of the winning player.

## Railroads Prepare for Additional Construction Activities

Further evidences of the large program of construction to be carried out by the railroads during the present year is indicated by recent advice with respect to a number of new projects definitely contemplated. The Gulf, Colorado & Santa Fe is now preparing plans for a two story and basement freighthouse 40 ft. by 100 ft. at Fort Worth, Tex. Plans are being prepared by the Southern Pacific for a warehouse with 850-ft. frontage on the ship canal at Clinton, Tex., as a part of the improvements which the company will make to its deep water terminal at that point. The warehouse contains approximately 160,000 ft. of floor space. The Illinois Central is contemplating the erection of a new passenger station at Jackson, Miss., to cost approximately $750,000, and of a passenger station at Hazelhurst, Miss., to cost approximately $45,000. The Louisville & Nashville is making arrangements, in co-operation with the city of Nashville, Tenn., for the construction of a reinforced concrete bridge over the tracks of the railroad at Chestnut street to cost approximately $30,000. The Chicago, Burlington & Quincy is contemplating the construction of stockyards with necessary track changes at Lincoln, Neb. A new company, the Fort Worth & Denver South Plains, was chartered on March 6 in the state of Texas for the construction of a line from Estelline, Tex., to Dimmitt, a distance of 200 miles. Actual awards of contracts include a contract placed by the Canadian National with the Bennettson White Construction Company for building of a freight shed at Calgary, Alta., at a cost of $34,000, and a contract awarded by the Central of Georgia to the Artley Company of Savannah, Ga., for the construction of a warehouse at Savannah at a cost of $35,000. The Atlantic Coast Line will award a contract on March 10 for an addition to the Y. M. C. A. building at Florence, S. C., at a cost of approximately $70,000.

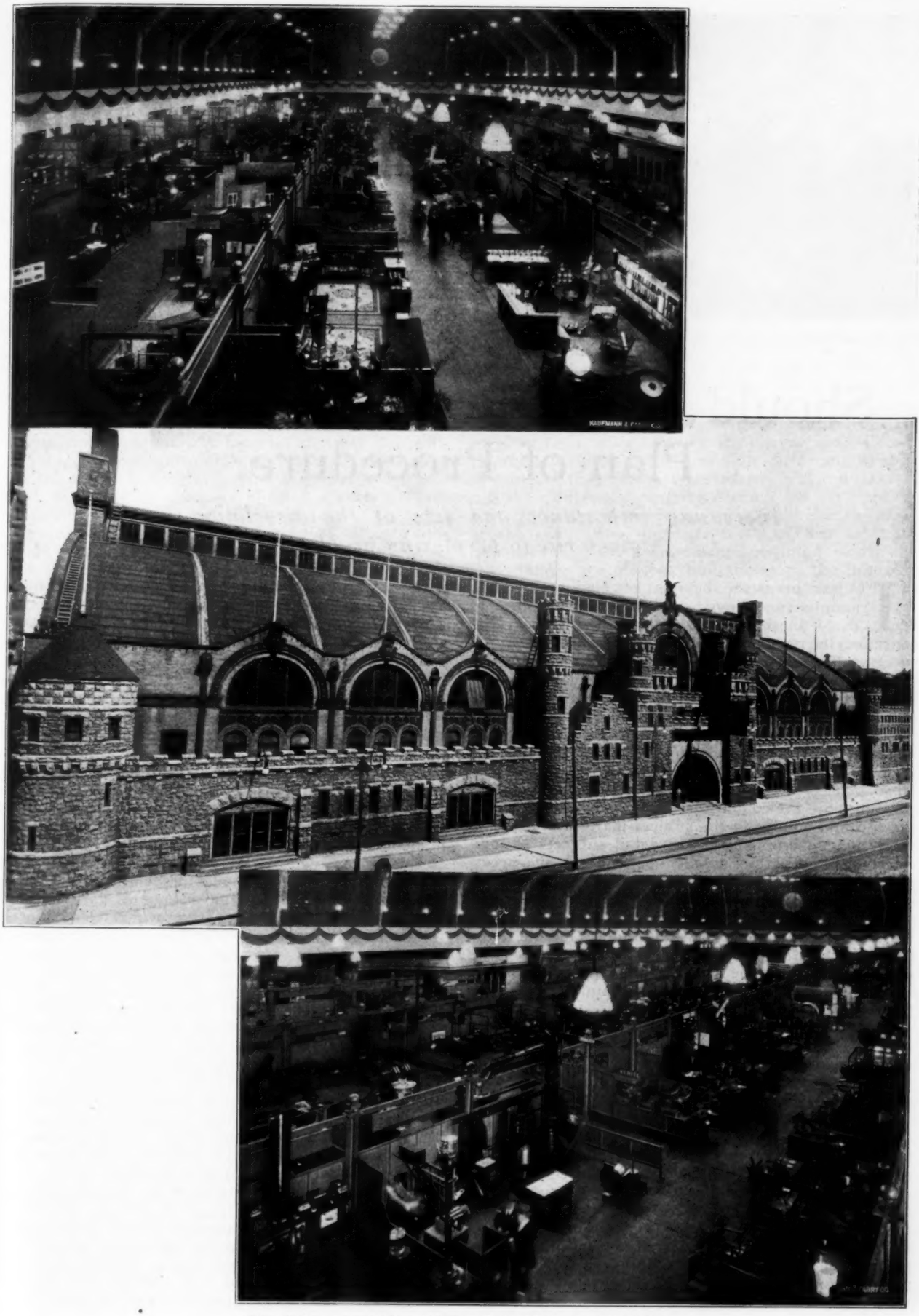
## Something Different

No dinner in the history of the Association has aroused as much interest as the one which will be held in the Gold room on Wednesday evening. The unprecedented demand for tickets assures that every seat will be taken and that the applications will exceed the capacity of the hotel, for only a few seats will remain unassigned when the convention opens. The committee will not permit us to give all of the details of the dinner but it is said that the music will include a young ladies' chorus that, in the words of the committee "forms a combination that is easy on both eye and ear, and an orchestra of 20 or maybe 30 pieces led by Professor Oompah, one of the best-known orchestra leaders in the middle west, and all points east." The committee also states that "there is a lot of inside stuff" that will be made known only to those who attend.

President Ray will preside, turning the intellectual part of the dinner over to Douglas Malloch, well-known humorist and toastmaster. The speakers will be limited to two, Frank H. Alfred, president of the Pere Marquette, and James C. Davis, director general of railroads and agent of the president, United States Railroad Administration.

Mr. Alfred is an engineer by training who has long been connected with the Pere Marquette in various capacities, including that of chief engineer, and, since 1917, its president. He has made an enviable record in the rehabilitation of that property, developing it from a notably weak road to the strong position which it occupies today. He has been singularly successful in improving the property with a minimum investment. His subject will be The Engineer in the Ascendant.

The work of Mr. Davis in conducting the negotiations in the settlement of claims between the railways and the government, following the period of federal control, is one of the greatest achievements of the government in its readjustments after the war. The work which he has done has merited the highest praise from railway and public men alike. Mr. Davis is an attorney by training, having represented the Chicago & North Western in the state of Iowa for many years. He was general solicitor for this road prior to his appointment as director general in 1919. He will speak on The Dawn of a New Day for Railroad Transportation.



The Coliseum and Two Views of the N. R. A. A. Exhibit

*Officers and Directors of the American Railway Engineering Association in Session at the Congress Hotel Yesterday*

# Should the A. R. E. A. Revise Its Plan of Procedure?

## *Increasing importance and size of the association has given rise to perplexing problems*

"IT has been the custom of engineering and maintenance-of-way associations heretofore to carry on their work without that system and continuity of purpose which is the only true means of successfully accomplishing the desired results. The work of our association has been laid out on unique lines. It is the intention to cover the entire field of engineering and maintenance-of-way research, divide up the subjects in systematic order, and continue and increase our standing committees and the subjects under consideration from time to time in order to do so.

"But while the committees may increase their membership and subdivide the subject matters under consideration, assigning different detail subjects to individual members, they should not overlook the necessity and importance of working as a unit and fully comparing and discussing results in committee meetings. When they come before the association as a body they should come as a unit and act together, and it is expected that they will be prepared to answer all questions that may be asked by members of the association in regular meetings and explain or defend the position taken by the committee."

This succinct statement, taken from the presidential address of John F. Wallace at the first convention of what was then the American Railway Engineering and Maintenance of Way Association in March, 1900, outlines the aims and methods of the organization as developed at that time and to which it has adhered during all the years which have elapsed since those pioneer days of association work. The volume of proceedings in which this address appeared contained only 173 pages relating strictly to the transactions at the first convention and of these, only 43 pages were devoted to the reports of the 14 standing committees. In the main, these reports constituted outlines or suggestions of the various studies which each of the committees could undertake in carrying out the purpose of the association during the subsequent years and with only 14 committees, each embraced a much broader field than the corresponding committees today. Thus the subject of ties was taken to embrace also wood preservation; bridges and trestles included both wooden and steel structures, while the committee on "Graduation" included in its program, work which is now divided between the Committees on Roadway and Economics of Railway Location.

Proceeding without precedent the association and its committees had to "feel their way," but like the founders of the American constitution the organizers of the American Railway Engineering and Maintenance of Way Association instituted policies and plans of procedure which have stood the test of time. This is demonstrated most remarkably by a comparison of the proceedings of 1901 with those of 1924. Such differences as there are must be ascribed entirely to the advance in the art and science of railroad construction and maintenance (for which this association is largely responsible) and to the background of precedent and the vast fund of information now available to the committees in the proceedings of other years. In those days men still discussed the disadvantages of stub switches and the use of brick for culverts, while the problems of curvature, switches and crossings were predicated on the requirements of only three types of engines, the American, the Consolidation and the Mogul. Nevertheless, the reports at the second convention in March, 1901, embodied the inception of much of the association's most effective work. It saw the beginning of specifications for bridge steel and rail, the inception of water treatment and the standardization of nomenclature by the drafting of definitions. It witnessed the first steps in the development of standard plans, it included studies of tie renewals and the influence of timber preservation.

So also in a reading of the discussion of the various committee reports we find a striking similarity in the processes then and now. What changes have taken place have been brought about by sheer force

of necessity rather than by any desire to depart from the plans adopted in 1900. The policy is the same but the conditions are different. In 1900 the association had 369 members. It now has 2,227 members. In 1907 less than 200 were in attendance at the convention, while in 1924 the registration totaled practically 1,000. In 1901 the convention reports covered 191 printed pages and the discussion occupied 145 pages. In 1924 the reports covered 1,151 pages and the discussion 256 pages. In 1901, one of the committee's chairman stated that his report was so long that he deemed it inadvisable to read it in its entirety. Today that practice is one of established custom. In the early days long arguments on the wording of definitions were strictly in order, today they are prohibited by established rules.

The enormous increase in the volume of the committee reports is not to be ascribed entirely to the increase in the number of committees from 14 to 24 regular and 3 special committees, but in large measure to an increase in the personnel of all the regular committees which has made it necessary to subdivide the work among a number of sub-committees. In effect therefore, each committee report comprises the work of a number of sub-committees each of which was allotted a certain subject for investigation and which must, therefore, in turn, be allotted a certain share of attention at the convention sessions.

In spite of the number of independent subjects submitted for discussion at each convention, the time occupied by the convention is practically the same as it was at the first annual meeting—three days of two sessions each, except that it has been possible to lengthen the sessions to the maximum space of time available between breakfast and luncheon and luncheon and dinner. Thus we find that whereas the reports in 1924 occupied six times as many printed pages as the reports in 1901, the printed discussion occupied less than twice as much space. At present an average of not more than 15 min. of convention time can be allotted to the discussion of each of the reports on each subject presented.

The increase in the volume of work done by the committees introduces another difficulty. With committee reports covering more than 1,000 pages, few members of the association find it possible to study them in sufficient detail to permit of pertinent criticism of more than a fraction of the material, even though the bulletins are placed in the hands of the members well in advance of the convention. Members are of necessity forced to restrict their careful reading of the report to subjects on which they are espeing of the report to subjects on which they are especially conversant. The reports, therefore, do not effect that broadening influence on the membership as a whole which would be possible if more of the members were enabled to read the bulletins in detail.

The restriction on the time that can be allowed to the discussion of the committee reports have had one particularly unfortunate influence, a subconscious reluctance on the part of those in attendance to offer suggestions from the floor for the revision or modification of the matter presented by the committees. This may be ascribed to two influences, an impatience with long arguments and a feeling that lack of time for a thorough discussion of modifications would lead to snap judgment on the part of the convention and thus result in the mutilation of work to which the committee is presumed to have given mature consideration.

The problem which confronts the A. R. E. A. is in no sense that of an organziation which requires a blood transfusion to provide renewed energy and insure healthy growth. Rather it is that of meeting the needs which arise as a consequence of its healthy growing condition. They are presented because it is constantly growing in size, because it is continuing to reach out to new fields of activity and because its members are clamoring for opportunities to participate actively in its work. Specifically it is a question of effecting an adjustment between the volume of the committee reports and the time available for their discussion at the annual conventions.

The problem offers two possible solutions: One, to extend the facilities for discussion; two, to cut down the volume of the reports. Each of these measures is susceptible to several solutions.

Considering the first suggestion, the most obvious solution is to offer more opportunity for the discussion of reports by curtailing the time occupied by committee chairmen in their presentation. This idea has already been put into practice by a number of committee chairmen but unfortunately a considerable number of them still take more time than is necessary to place their reports before the convention. This is clearly a problem of the presiding officer and in spite of the fact that he must necessarily feel reluctant to call the chairman strictly to account for any needless remarks in the introduction, he should, for the good of the convention, institute more or less arbitrary measures to guard against waste of time.

But there are obvious limitations on the improvement that can be effected in this manner and this naturally leads to the suggestion to extend the convention over an additional day. This has a disadvantage in that it increases the expenses incurred by those attending the convention, but it is probably more objectionable by reason of the tendency which it might have to decrease the interest of those present. No association works harder and more intensive than this one and it is seriously to be questioned if the members would not become exhausted even if the subjects were not, some time before the fourth day's proceedings had been completed.

The alternative is to follow the methods pursued by several other large associations of providing simultaneous group or sectional sessions. This would have the advantage of enlisting more intensive discussions from smaller numbers, whereby a larger proportion of those attending would be afforded opportunity to be heard. The disadvantage lies in the conflict of sessions whereby many would be denied the opportunity to attend sessions concerning all subjects in which they were especially interested. Also the liberal education now afforded by listening to those discussions beyond one's immediate interests would be lost.

Turning now to the second basic suggestion, that of decreasing the volume of committee reports, we find that the objections are even greater. In large measure the well-being of the association is founded on active participation in the committee work by as large a proportion of the members as possible. To curtail the work means to reduce the activities of the committees because there is a limit to the number of men that can be profitably assigned to the study of a single subject. The Board of Direction has expressed its preference for committee efforts comprising the complete treatment of a limited number of subjects each year, but in spite of this many of the committees continue to present matter on a considerable number of assignments at each convention. One possible solution may lie in a more rigid application of this policy,

namely, to limit the committees to detailed reports on one or two subjects with the thought that some of the sub-committees engage in work to be reported at the following convention.

A more radical plan would provide for the presentation of reports by committees at alternate conventions, half the committees reporting one year and the other half the following year. An elaboration of this suggestion might provide for the holding of sectional meetings at the convention for the discussion of progress reports by committees during the off-years for the purpose of giving each committee some measure of representation each year. This plan has the further advantage of providing for a more detailed consideration of each committee's report before it would be presented in final form before the convention as a whole. Under this plan all committee reports might be published in the bulletin; limiting the publication in the annual proceedings to the reports of those committees which were presenting their reports in final form.

This plan or any of its variations gives rise to some pertinent questions. If committees or sub-committees are assigned subjects on which they are not required to report before the convention until the expiration of a two-year period could they be made to take their assignments seriously until the second year. If off-year sectional meetings were provided for would not the preliminary reports presented at such sectional meetings be prepared in a superficial or decidedly incomplete form? Could the distinction between first-year and second-year reports be made clear to all who read them? Would the plan not lead to some difficulties or added expense in publication? These and other questions must be answered satisfactorily before the plan could be approved.

The various plans which are outlined above are offered purely by way of suggestion. Their presentation implies no preference for any one of them. The association has done remarkable work and has earned an enviable name under the mode of procedure now pursued and any deviation from the present plan must be undertaken with caution and only after mature consideration. The American Railway Engineering Association has been of enormous value to the railways by reason of its initiative and industry in studying the problems of railway engineering and maintenance as they present themselves with the advance of the industry. It can further its usefulness by a manifestation of equal resourcefulness in meeting its own internal problems.

## Three New Committee Chairmen

OF THE chairmen who will present the reports of the standing committees during the course of the American Railway Engineering convention this week only three are appearing as the leaders of these committees for the first time. Of these three new chairmen, two are completing their first year's service in this capacity while the third has seen previous service in directing committee work.

J. R. W. Ambrose, the new chairman of the Committee on Yards and Terminals, was prominently identified with the work of the Committee on Roadway, having served as chairman for 3 years and as a member for 12 years, when he relinquished his connection with that committee in March, 1922, to become a member of the committee which he now heads. Mr. Ambrose's value as a member and chairman of the Committee on Roadway was founded on his long experience in railway construction in Canada. His selection as head of the Committee on Yards and Terminals may be ascribed in large measure to his experience in terminal work as chief engineer of the Toronto Terminal Railway during the entire period of construction of the new passenger station at Toronto.

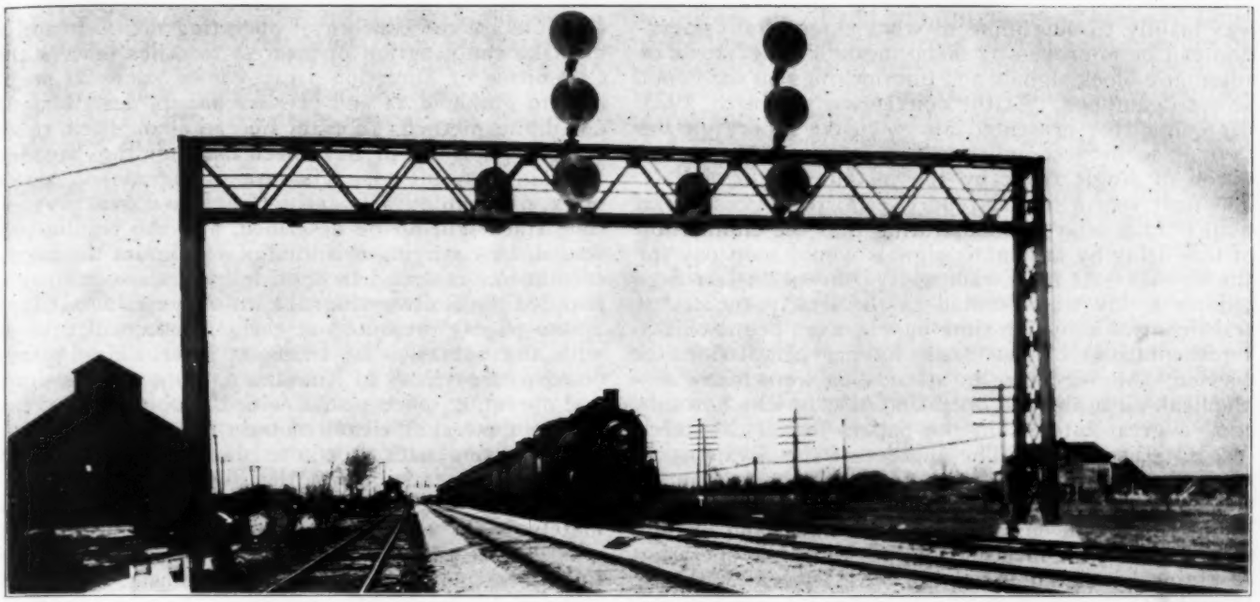
G. L. Moore, the new chairman of the Committee on Rail, has been a member of that committee for the last three years. In his position as engineer maintenance of way for the past 16 years on the Lehigh Valley, a railroad which has occupied a leading place in the use of the heavier sections of rail, Mr. Moore has enjoyed unusual opportunities to study the behavior of heavy rail and ascertain its advantages on heavy traffic lines. He has also been prominently identified with the introduction of advanced methods in the conduct of maintenance of way work, particularly in the laying of rail with power equipment. Previous to his connection with the Lehigh Valley he served for five years as chief engineer of the Rutland after service in various positions in the maintenance of way department of the Chicago & Alton and the Erie.

The selection of T. E. Rust as chairman of the Committee on Signs, Fences and Crossings comes as a recognition of his long service with that committee, of which he has been a member since 1916. Previous to his advancement to chairman he served for one year as vice-chairman. Since 1909 Mr. Rust has been chief engineer of the Waterloo, Cedar Falls & Northern. He entered railway service in 1899 as an assistant in a location party on the Denver & Rio Grande. Subsequently he obtained a well-rounded experience on various properties including the Rio Grande Western, the White Pass & Yukon and the Uintah railroad. From 1905 to 1909 he served as chief draftsman and later as principal assistant engineer on the Chicago Great Western.

## Members Begin to Register Early

ALTHOUGH registration of members of the American Railway Engineering Association was not scheduled to begin until this morning, 35 members and 4 guests, early arrivals, registered yesterday. They included the following:

Ambrose, J. R. W., director, ch. engr., Toronto Terminals, Toronto, Ont., Canada.
Ames, Azel, Kerite Insulated Wire & Cable Company, New York City.
Anderson, B. T., supt. of sig., C. & O., Richmond, Va.
Balkwill, Stephen, pres. The Balkwill Manganese Crossing Company, Cleveland, Ohio.
Brown, J. M., asst. to vice-pres., C. R. I. & P., Chicago.
Brumley, D. J., director, ch. engr., Chicago Terminal Improvements, I. C., Chicago.
Churchill, Chas., S., past-pres., vice-pres. N. & W., Roanoke, Va.
Coates, F. R., pres. Comunity Traction Co., Toledo, Ohio.
Conway, T. H., asst. engr., N. P., Livingston, Mont.
Cowherd, Geo. R., sig. supvr., Sou. Pac., El Paso, Texas.
Deckert, J. E., cont. engr., Deckert & McDowell, Chicago.
Dillenbeck, Clark, asst. ch. engr., Reading, Philadelphia, Pa.
Dorrance, W. T., des. engr., N. Y. N H & H., New Haven, Conn.
Duncan, K. B., dis. engr., G. C. & S. F., Galveston, Texas.
Eck, W. J., supt. signals, Sou., Washington, D. C.
Eisenhauer, Geo., elec. engr., Erie, New York City.
Fairbarin, J. M. R., 1st vice-pres., ch. engr., Can. Pac., Montreal, Can.
Gagel, Edward, ch. engr., N. Y. N. H. & H., New Haven, Conn.
Gooding, W. J., div. engr., Seab. Air Line, Charleston, S. C.
Holt, A. G., asst. ch. engr., C. M. & St. P., Chicago.
Houston, J. V., asst. sales mgr., Ramapo Ajax Corp., Chicago.
Howson, E. T., Western Editor *Railway Age*, Chicago.
Jamieson, J. L., supt., Can. Pac., Lethbridge, Alta., Can.
Kent, A. S., ch. engr., C. I. & L., Chicago.



*The Track Capacity of a Double Track Section of the Illinois Central Was Increased By Signaling Both Tracks in Both Directions*

# Signal Section Broadens Program

## *Ways of Expediting Train Movements and Increasing Track Capacity Featured in Friday's Program*

TRAIN operation by signal indication will be the sole subject for discussion on Friday of this week at the annual convention of the Signal section of the A. R. A., at the Drake Hotel, Chicago. The entire day will be devoted to the presentation and discussion of some 20 papers relating to the use of signals to direct train movements and one extensive report on the cost of train delays.

These papers will present the results obtained on installations of signals that have been used or are being used to expedite train movements on single track, on double tracks and for reverse movements on one or more tracks on multiple track lines. In offering this information the members of the Signal section are endeavoring to show the extent to which signal facilities increase track capacity, for the assistance of those officers who are required to determine whether signaling, second track, heavier power or other measures are the most economical. Railroad officers of all departments are invited to attend this meeting and to participate in the discussion.

The session on the day previous, i. e., Thursday, March 11, will include the presentation and discussion of eight committee reports and a paper on the relation of air brakes to train control which latter paper will be of special interest to mechanical officers.

### Signal Section Started with Six Members

The present active organization which is known as the Signal section of the A. R. A., began when six men located in the vicinity of Chicago, who were interested in signals and interlocking work, organized the Railway Signal Club on March 11, 1895, appointing W. J. Gillingham, Jr., then signal engineer of the Illinois Central, president and G. M. Basford, secretary and treasurer. The other four members were W. H. Elliot, (C. M. & St. P.); W. B. Turner (C. & W. I.); H. D. Miles, (M. C.), and V. K. Spicer, (Union Switch & Signal Company). The meetings of the first two years were devoted to the presentation of several papers, and the report of one committee on a code of rules governing the operation of interlockers. The authors of these papers included W. B. Turner, W. H. Elliot, W. W. Salmon, H. D. Miles, A. H. Rudd, V. K. Spicer and H. M. Sperry. The Signal Club, a local Chicago organization, soon expanded to a national society and in 1903 the name was changed to the Railway Signal Association which was absorbed by the American Railway Association in March, 1919.

The meetings during the first few years were devoted to the discussion of papers on signal and interlocking subjects. Within four or five years regular committees were appointed to prepare specifications and standards for mechanical interlocking apparatus, automatic signals, lamps, electric locking, etc. The results of this committee work, in the form of specifications and standards, have in large part now been approved and placed in the Manual as a guide for manufacturers and the railroads. Rapid progress has been made so that the majority of the apparatus used for signals and interlocking is now covered by excellent specifications. This work is being continued to include new apparatus and new developments coming to the attention of the Section.

Of late a belief has developed in the minds of many of the members that in the years of effort to produce these specifications the association overlooked opportunities to inform railroad officers of the value of signaling. In response to this trend the Committee of Direction within the last few years has endeavored to prepare programs of general interest to railroad officers. In 1922 a committee was appointed to study the Economics of Signaling. In presenting its first report the committee explained that the purpose of its studies

was mainly to determine to what extent train operation can be improved by installing modern systems of automatic block signals and interlockings on roads not now so equipped. At the convention in March, 1923, the committee presented an extensive report on the savings to be accomplished on a typical 100-mile division of single track by the installation of signals. The next year a similar report set forth the cost of an hour's train delay, demonstrating that the elimination of this delay by automatic signals would soon pay for the signals. At the Swampscott convention last September a day was devoted to the timely subject of train control at which time papers were presented by representatives of five roads having installations in service. Among those in attendance were many mechanical, air brake and operating officers who not only took a great interest in the papers but also entered into the discussion. The success of the Swampscott convention led the Committee of Direction to plan for the discussion of another subject of broad scope and of interest to all engineering, mechanical and operating officers at the meeting this week and the operation of trains by signal indication was selected with the thought that means of increasing the track capacity without adding second track are of vital concern to engineering officers, and that ways of keeping trains moving and thereby reducing the number of locomotives required and of getting trains over the road on schedule are the concern of operating men. In order to make the program of interest to other officers the Committee of Direction arranged for some 20 members to gather data and prepare papers describing in detail the methods of train operation on their roads where signals are or have been used for the direction of train movements. The use of signals on single track, on double track, and for reverse moves on multiple track will all be described, and the results presented. In arranging this kind of a program the Signal section has returned to the ideals of those men who founded the Railway Signal Club 30 years ago. Many of the papers presented at early meetings had to do with the operation of trains at interlocking plants, being so written as to stimulate interest among signal and operating officers alike with the object of increasing the general efficiency of train operation.

By starting with a definite plan of presenting programs of general interest the Signal section may be inagurating a practice which will be followed ultimately by other railway associations. One development of this plan would be to conventions of engineering, operating, signal and other officers to be held simultaneously in the same city. Technical specifications and standards could be discussed in separate sessions of each association while other sessions could be held jointly by two or more of the associations for the discussion of subjects of common interest.

# Engineers Face Heaviest Improvement Program in History

IT has been many years since the railways faced a more favorable present and future outlook. Basic conditions in farming and in industry are sound, for the first time since the war, and the outlook for the continuance of this condition appears to be excellent. Traffic which was heavy during 1923 continued at this rate during 1924 and every indication points to the maintenance of this general level if not to a substantial increase in it during 1925. Earnings have been better and credits easier than they have been for years. Public sentiment, in general, is favorable to the railroads and the expression of this sentiment in the last national election has removed the possibilities of hostile or grossly unfair legislation for at least the present year and probably beyond that.

From an engineering standpoint, the situation in regard to the development and expansion of track and structures is more favorable than it has been in the last decade or two. While all indications are that the construction activities of the railroads for 1925 will be in excess of anything in their history, there is nothing tending to indicate that it will not be sanely and efficiently handled without any disturbing concentration of hurried buying.

### New Records of Efficiency of Operation

In regard to traffic, the year 1924 presented a number of outstanding features in the way of new records in handling the large volume of business which was offered to the railways. While the total amount of traffic, as measured by either car-loadings or by net ton-miles was a little below that for 1923, it was handled with a car surplus throughout the year. Further than that it produced a number of individual records in the way of a sustained peak traffic, regularly and efficiently moved; the greatest number of cars loaded in any one week; the largest net ton miles of freight for any one month; the heaviest movement of empty and loaded freight cars in any one day and many others. Following the heavy traffic of 1923 there was the usual end of the year drop, followed by an increase that eclipsed all previous January and February loadings. From then on the traffic began to fall off, contrary to the usual tendency and continued light during the spring and fall. In September the traffic increased at an unprecedented rate, rising to a peak and a record-breaking loading of 1,112,345 cars during the week ending October 25. Surplus cars exceeds 300,000 at the beginning of 1924 and, naturally fluctuating during the year in relation to the loadings, reached a minimum of 94,153 during the week of the record breaking loading.

The most important feature of the 1924 performance is that it emphasizes the marked increase in efficiency of operation that has been taking place in the last several years and which in a measure forms an insurance of continued or increased earnings. Since capital expenditures are dependent upon the credit of the roads and credit in turn is largely measured by the earnings, any desirable financing can be consummated much more easily than has been possible for a long time. This is particularly true in view of the fact that all indications point to a substantial increase in traffic for 1925. The heavy traffic of 1923 and 1924 has been handled largely through the more intensive use of existing facilities, this intensive use being made possible through improvements in methods, some additions or extensions to existing facilities and through the addition of new equipment. While this condition might possibly be continued for a short

period, it does exert a marked pressure for increased facilities and more liberal maintenance programs. If traffic should continue to grow and facilities remain at or near their present level, it would be only a short time before the railways would be unable to handle any increase in traffic whatever.

### Roadway Improvements Form Greater Part of 1925 Requirements

The traffic capacity of railroads is dependent upon its equipment and upon its track, terminal, yard and other facilities and when it becomes necessary to provide for increased capacity, it is usually secured by adding first to the equipment and then to the facilities. This is usually the result of the greater ease of financing equipment which in times of poor earnings becomes a factor of primary importance. While construction has evidenced a large increase in the last two years, the expenditures for equipment have formed the greater part of the authorizations for the two years with a trend toward an increasing percentage of the total expenditures for roadway improvements. During 1923, the Class I roads spent slightly over $1,059,000,000 for capital improvements, of which 64 per cent went for equipment and 36 for roadway and structures. In 1924, the total expenditures authorized were approximately $1,077,000,000, of which about 48 per cent went for equipment and 52 per cent for roadway and structures. A study of the budgets for 1925 which was published in the Annual Statistical Number of the Railway Age, indicated that the railways of the United States and Canada will spend $1,350,000,000 for additions and improvements in 1925 or at a rate 15 per cent greater than that during the last two years. The trend in the division of the authorizations which was noted in 1923 and 1924 is more plainly evident in the forecasts for 1925, all information indicating 70 per cent or the greater part of the authorizations for the year will be for roadway and structures and the remainder for equipment. However, it is not apparent that this increase in roadway expenditures will be made at the expense of equipment for the amount expended for this purpose will be approximately the same as that for 1924. Thus it may be seen that the railroads have before them the largest expenditures for roadway improvements that they have ever had in their history and in addition to this there is almost certain to be equivalently liberal authorizations for maintenance and other work chargeable to operation. Of further interest in this connection is the fact that a much smaller percentage of the expenditures for 1925 will be far carried over, with the result that the work which will be done this year will consist to a larger degree than usual of new projects.

### Improvement Programs Are Spread Over Entire Country

The work which was under way during 1924 was of a nation-wide character, being confined to no one general section of the country or localized group of railroads. The same apparently holds true for 1925. Among the roads which are contemplating the most extensive programs are the Southern Pacific-Pacific System in the west and southwest; the Illinois Central and the Louisville & Nashville in the central west and south; and the Pennsylvania, the Central of New Jersey, the Reading and the Central of Georgia in the east and southeast. The Southern Pacific-Pacific System expects to spend approximately $52,000,000 in 1925, of which about $37,800,000 will be for roadway improvements. In addition to this the Texas and Louisiana lines of the same road plan the expenditure of about $10,600,000, of which about 75 per cent will be for roadway. In the east the Pennsylvania contemplates the expenditure of more than $60,000,000, of which approximately $35,000,000 will go for roadway improvements. The Illinois Central plans to spend about $42,000,000 during the year and of this about $25,000,000 will be for improvements to roadway and structures.

### All Classes of Facilities Will Receive Attention

All classes of facilities will apparently receive attention during the year with perhaps more work on those that will increase the capacity of the railroads most effectively and likewise show the greatest possibilities toward a still further reduction in operating expenses. Thus shops and shop equipment, second and other multiple main track, freight classification yards and other work of this nature will receive increasing attention. Indications are that approximately $50,000,000 will be spent for multiple main tracks alone. Some of the roads most concerned with this problem are the Florida East Coast, which is planning to double track its line and already has appropriated $3,103,000 for 61 miles of line; the Atlantic Coast Line, which has for the past two years been carrying forward an extensive second track program and which plans the final completion of 87 miles carried over and 41 miles of additional mileage; and the Chicago, Rock Island & Pacific, which has appropriated $3,400,000 for this purpose. The work of the Southern Pacific in the Sierra Nevadas, while carried over, will involve considerable work during 1925. The Santa Fe has also been active in second track work during the past several years and will probably continue with similar work this year.

Among the important new lines on which a large amount of work will be done this year is that of the Illinois Central between Edgewood, Ill., and Fulton, Ky., entailing an estimated expenditure of $18,000,000 and for which contracts have been let for various sections with an authorization for this year of $5,000,000. There is also the Natron cut-off of the Southern Pacific; a number of extensions of the Union Pacific and the construction of 47 miles of new line by the Central of Georgia as a part of the program of reconstruction of that road's Columbus-Birmingham line.

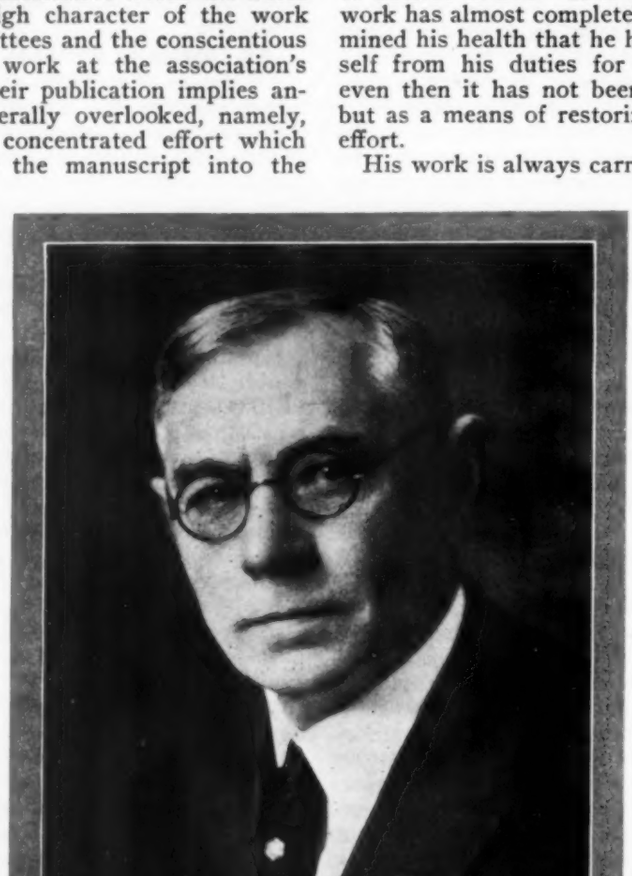
Among the shop, engine terminal and yard development projects are those of the Illinois Central, first contracts having been let for new locomotive and car repair shops at Paducah, Ky., involving a total expenditure of approximately $6,000,000 and for new shops at the Markham yard to cost about $5,000,000. Other roads which are planning large appropriations for additional facilities of this general nature are the Florida East Coast, the Missouri Pacific, the Norfolk & Western, the Southern and the Central of New Jersey.

It will be evident from the foregoing that the engineering officers are facing a year, the successful conclusion of which will do much toward putting the railways on a much improved basis for the still more efficient handling of an increasing volume of traffic. It will also be evident that with equivalently liberal appropriations for expenditures for the maintenance of roadways and structures added to the improvement programs, the engineering officers are going to experience one of the busiest years in their history and that their responsibility will likewise be increased to a degree greater than ever before. Careful planning and thorough co-ordination will be necessary.

# E. H. Fritch, Secretary

THE AMERICAN Railway Engineering Association has long enjoyed a well earned reputation for the high quality of its publications: the bulletins, the annual proceedings and the Manual, which are recognized as authoritative works the world over. They reflect the high character of the work done by the various committees and the conscientious review of the committee work at the association's conventions. However, their publication implies another factor which is generally overlooked, namely, the painstaking care and concentrated effort which is imposed in converting the manuscript into the printed page. The printing of any book is a tedious task; but it is far more difficult when the subject matter is of a highly technical nature. The opportunities for error are a thousand fold, yet the A. R. E. A. publications are notably "clean," using the vernacular of the printing industry.

It is therefore fitting that credit for this be placed where it is justly deserved, namely, on the man who has occupied the position of secretary since 1906 and who served in a subordinate position in the secretary's office previous to that time. E. H. Fritch owes much of his skill as the publishing editor of the association's publications to an early training as a printer, but his success in the work must be ascribed largely to an inborn habit of painstaking care in his work. It is only in recent years that he has consented to delegate any of this work to others, but even today the editing, proof reading and make-up of the thousand pages of matter which is printed each year by the association represents very largely his own personal efforts, occupying many tedious hours at his desk and in the print shop.



**E. H. Fritch**
*Secretary, American Railway Engineering Association*

In spite of the exacting requirements of the secretary's work and the enormous amount of routine involved in his other duties the secretary never allows these responsibilities, no matter how urgent, to interfere with the demands made on his time by the individual members. No callers at his office are ever allowed to feel that their presence is interfering with the work at hand. They are always cordially welcomed. His attitude is not to be ascribed alone to a natural affability but is due in greater measure to his conviction that his duty to the association is one of service, service to the association as a whole and service to the individual members in their work on the committees or in other association activities, by offering help.

So firmly has this thought of service become a very part of him that he has given his life, his whole interest, to the association to an almost entire exclusion of outside affairs. It is only after periods when his work has almost completely exhausted him and undermined his health that he has consented to absent himself from his duties for any protracted period and even then it has not been with a view to recreation but as a means of restoring his energies for renewed effort.

His work is always carried on in an exceeding modesty of manner, his motives with the fundamental good of the association ever in mind and no thought of personal aggrandizement such as is all too frequently observed in the others occupying corresponding positions. Nevertheless, he has, in his own quiet way, clearly evidenced the essential characteristics of the effective secretary.

Foremost among these is a remarkable memory for faces and names. Rarely has a member walked into his office without being greeted at once by the calling of his name, supplemented by a remark that disclosed a complete knowledge of the caller's connection and official position. This quality has been of enormous value in the conduct of the association's affairs and is of invaluable assistance to the presiding officer at the convention in recognizing speakers on the floor. It has been effective in saving many hours of clerical efforts in the office work.

Founded on native gift, his unusual memory has been strengthened by an absorbing interest in the association and its personnel. If he could be accused of having a hobby it is that of maintaining a close check on the members, particularly those with whom he was closely associated in the early days of the A. R. E. A. It is among these that he numbers his warmest friends, and the associations thus engendered and subsequently maintained are the source of his greatest pleasure. It is in these rather than in a search for honor or emolument that he has found the recompense for the years of hard work that he has given to the association.

A painstaking love for detail and a genuine desire to be of service to his fellow men has characterized all of his association activities during the past 19 years that he has been an officer of the A. R. E. A.

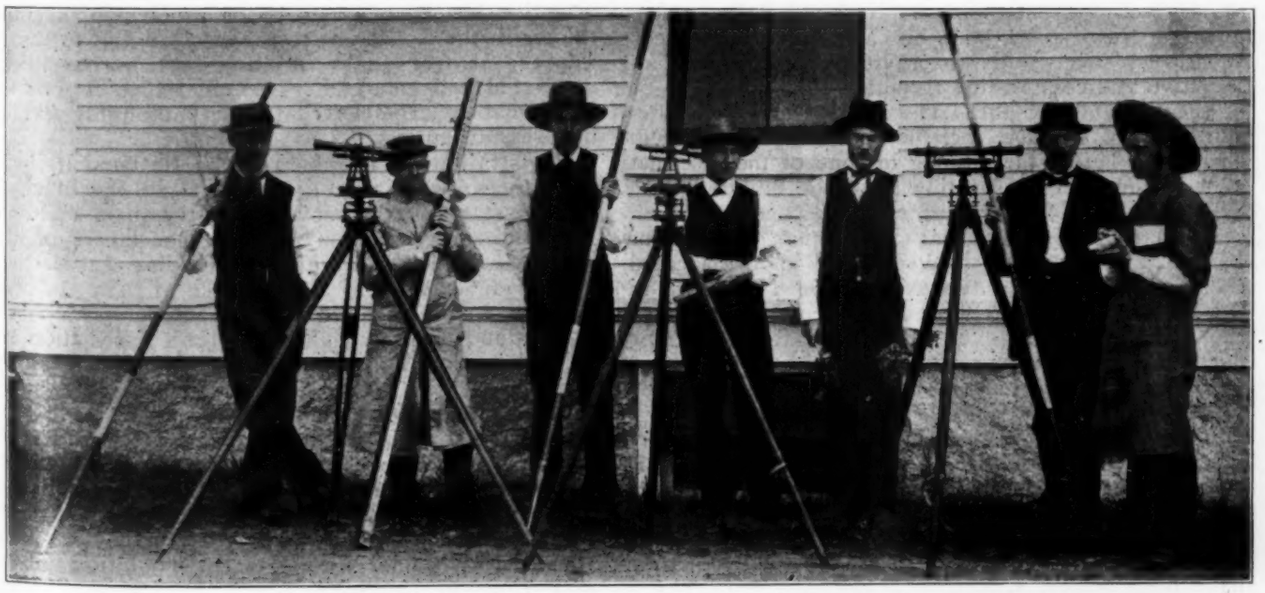
# Year's Flight Finds Several Members in New Roles

THAT the past year has not run its course without developing news of pleasing import to the Association is found in the record of promotions that have come to several of the members since the last convention. Examination of the list discloses the first few weeks of the new year as most prolific of surprises for the Association, with its creation of three new vice-presidents, a new chief engineer and an engineer maintenance of way from among the members, to say nothing of the several promotions of subordinate order they brought.

The members involved need no introduction to the Association. **H. R. Safford,** who was elected executive vice-president of the Gulf Coast Lines and the International-Great Northern on February 1, was president of the Association only three years ago and has been conspicuously active since the early year when he was assigned No. 266 on the list of members. **F. L. Thompson,** who was promoted from chief engineer on the Illinois Central to vice-president in charge of terminal improvements on February 1, has not only been a regular attendant at the conventions for many years but was a former director and past chairman of the Masonry Committee. He is serving at present on the Committee on Rail. **A. M. Burt,** who has been advanced from vice-president on the Northern Pacific to vice-president in charge of both maintenance and operation, is a director at the present time and a member of the Committee on Signals and Interlocking. **A. F. Blaess,** who has been advanced from engineer maintenance of way of the Illinois Central to chief engineer as a successor of Mr. Thompson, is also a director at present and a member of the Committee on Economics of Railway Labor, while **L. H. Bond,** who has been advanced from assistant engineer maintenance of way of the Illinois Central to engineer maintenance of way as Mr. Blaess's successor, is a member of the Committee of Records and Accounts. More recent changes affecting members of the Association occurred on the Missouri Pacific where **R. C. White,** who is at present serving on the Committee on Economics of Labor, was advanced from engineer maintenance of way to assistant general manager and **A. A. Miller,** division superintendent, was advanced to succeed Mr. Miller.

Among other prominent members of the Association who are found occupying new roles since the last convention is **J. L. Campbell,** president of the association two years ago, whose title has been changed to that of assistant to chief engineer of the Southern Pacific, Coast Lines, pursuant to the absorption of the El Paso & Southwestern by the Southern Pacific. The lists also include **Hadley Baldwin,** who has been advanced from assistant to general manager on the Cleveland, Cincinnati, Chicago & St. Louis to chief engineer to succeed **C. A. Paquette,** who left railway service to become president of the M. E. White Construction Company. Other new chief engineers chosen for the membership include **R. O. Rote,** one of the old members, who has been advanced from assistant chief engineer of the New York Central, Lines West, to chief engineer of the same line; also **R. A. Cook,** formerly valuation engineer of the Chicago & Alton, who became chief engineer of that road upon the death of **H. T. Douglas, Jr.**; and **J. A. Heaman,** who is now chief engineer of the Grand Trunk Western. During the same period **J. W. Orrock,** principal assistant engineer of the Canadian Pacific and a member of the Committee on Buildings, became engineer of buildings of that road.

Among the members who have either entered the operating department for the first time or have been given larger responsibility are **R. D. Starbuck,** who has been advanced from assistant vice-president of the New York Central to vice-president in charge of operation succeeding P. E. Crowley, when the latter became president; also **George Harwood** who has been advanced from assistant to the president of the New York Central to vice-president in charge of improvements and development, together with **J. E. Crawford,** who has been advanced from assistant general manager of the Norfolk & Western to general manager, and **F. L. C. Bond,** a member of the Personnel committee, who has transferred from his former position of chief engineer of the Central Region of the Canadian National to a general superintendency on the same system.



**How Many Would Recognize C. A. Morse as Third Man from Left in This Picture Taken Years Ago?**

*Officers and Directors of the National Railway Appliances Association*

# The N. R. A. A. Exhibit Opens at the Coliseum

## *Largest display of engineering materials ever assembled is presented by 176 companies*

THE seventeenth annual exhibition of the National Railway Appliances Association, which opened yesterday morning at 8 o'clock, establishes several new records. There are more exhibitors and more elaborate displays of railway materials and devices, the enthusiasm and co-operation of the exhibiting members has been declared to be greater than ever, and before the close of the exhibition the attendance record also is expected to be surpassed. Well over 30,000 visitors are expected, and the efforts of W. C. Kelly, secretary of the National Railway Appliances Association, and his assistants have been spent very successfully to provide an interesting, instructive and comfortable reception for them.

The demands of the 176 exhibitors for space required every available inch of room in the Coliseum many days before the opening in spite of the fact that a new annex on the north end of the building with more than 17,000 sq. ft. of exhibit space, has been constructed since last year. This annex extends for 105 ft. north on Wabash avenue and in it is located the main entrance to the exhibition. The doors in the south annex formerly used as an entrance are now the main exit. Three entrances lead from the new north annex into the main hall of the Coliseum so that there will be no congestion in the passage of the visitors through the aisles.

A new shade of yellow predominates in the decorations, with trimmings in olive green. This color scheme is carried out in the decoration of the ceilings and balcony as well as the railings, backboards and signs about the exhibits. The electrical decorations are all new and are much more extensive than they have been before.

Convention attendants who view the exhibition will find that the same care has been taken to insure their comfort as in other years. All entrances and exits are protected by canopies extending over the sidewalk and are marked with appropriate signs of the exhibition. The new annex also contains larger check rooms and toilet facilities and a large number of telephones are available in the center of the Wabash side of the main building. A restaurant is located in the basement of the Coliseum where visitors may secure food without the trouble of leaving the building. Extra attention has been given to the problem of keeping the air in the Coliseum fresh and clean and to insure this the heating and ventilating systems have been renovated and enlarged. The air, which is pumped in and out by large electric fans, is thoroughly washed by pressure sprays.

Registration for members of the National Railway Appliances Association is as usual in the office of the secretary on the east side of the main building. In addition registration desks for members of the American Railway Bridge and Building Association, the Roadmasters' and Maintenance of Way Association, the American Railroad Signal Supervisors' Association, and the National Scale Men's Association are located in the Wabash avenue annex near the main exit.

More than 12,500 invitations and passes have been distributed to railroad and technical men and to colleges and railroad societies. In addition, 75,000 passes have been assigned to the exhibitors. The Coliseum will be open each day from 8 a. m. until 6:30 p. m., except today, when the door will remain open until 10 p. m. The final closing of the exhibition will be at 1 p. m. on Thursday.

The officers and members of the board of directors

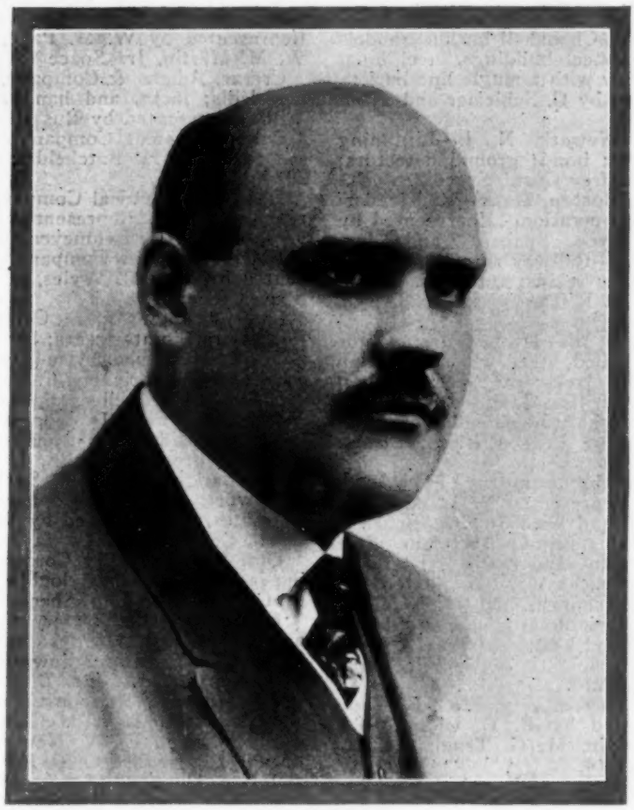
of the National Railway Appliances Association who served during the past year are: President, A. J. Filkins, Paul Dickinson, Inc., Chicago; vice-president, W. J. Gillingham, Hall Switch & Signal Company, Garwood, N. J.; secretary-treasurer and director of exhibits, C. W. Kelly, Kelly-Derby Company, Inc., Chicago; honorary director, L. W. Shugg, General Electric Company, Schenectady, N. Y.; directors, C. S. Smart, W. & L. E. Gurley Company, Troy, N. Y.; W. B. Murray, Miller Train Control Corporation, Danville, Ill.; H. S. Mann, Metal & Thermit Corporation, Chicago; A. L. Greenabaum, O. F. Jordan Company, East Chicago, Ind.; L. E. Weidman, The Frog, Switch & Manufacturing Company, Carlisle, Pa.; and J. W. Fogg, American Bolt Corporation, Boss Nut Division, Chicago.

The following is a list of the firms which are presenting exhibits with the devices on display and the names of the representatives who are present at their booths. The devices exhibited for the first time are shown in bold face type:

Adams Motor & Mfg. Company, Chicago.—Gasoline operated railway motor cars. Represented by W. E. Adams, W. A. Bailey and R. S. Adams. Spaces 218 and 218½.

Adams & Westlake Company, The, Chicago.—Signal lamps; long time burners; highway crossing signals; switch locks; lanterns; **semaphore lamp with focusing device and mirror.** Represented by A. S. Anderson, E. H. Leisch, W. J. Piersen, W. G. Porter, H. G. Turney and G. L. Walters. Spaces 250, 251, 252 and 253.

Air Reduction Company, New York City.—Oxygen; acetylene; oxy-acetylene welding and cutting apparatus and supplies. Represented by E. M. Sexton, B. N. Law, W. H. Luddington, R. T. Peabody, C. A. Daley, L. W. Hughes, T. M. Hamer, R. F. Helkamp, G. E. Phelps, H. R. Wilker and G. M. Calmback. Spaces 167, 167½ and 168.



**A. J. Filkins**
*President*

*The election of Mr. Filkins to the presidency of the National Railway Appliances Association last March marks the culmination of a number of years of active participation in its affairs of which the last five have been in an official capacity. He has been in the railway supply field for more than 20 years and has made a wide circle of friends among railway and railway supply men. The early part of his business career was spent in the sheet metal and hardware line. Following this he entered the employ of Paul Dickinson, Inc., in 1903, with which organization he has since remained continuously and of which he is now president.*

American Casting Company, Birmingham, Ala.—Cast iron culvert pipe; **spiral corrugated cast iron culvert pipe.** Spaces 243, 244, 259 and 260.

American Bolt Corporation, Boss Nut Division, Chicago.—Lock nuts; bolts; rivets; lag screws. Represented by J. W. Fogg, C. Beaumont, J. A. MacLean and A. W. MacLean. Space 1.

American Car and Foundry Company, Chicago.—Electric rivet heaters and metal heaters; **heater for heating rods and bars.** Represented by Arthur G. Wood. Space 267.

American Chain Company, Inc., Bridgeport, Conn.—One piece guard rails; guard rail clamps; car replacers; rail benders; chain; **one piece guard rails.** Represented by G. C. Isbester, A. H. Weston and A. P. Van Schaick. Spaces 81, 82 and 83.

American Hoist & Derrick Company, St. Paul, Minn.—Railroad ditcher; locomotive ditcher; locomotive pile driver; rivet heaters. Represented by Miss Helen Hoeller, Ward B. Maurer and W. L. Manson. Spaces 37 and 38.

American Malleable Castings Association, Cleveland, Ohio.—Malleable castings; working exhibit including physical testing of malleable castings. Represented by Enrique Touceda. Spaces 181, 182 and 183.

American Railway Hydrant & Valve Company, New York City.—Water hydrants and supplies. Represented by Wm. Volkhardt. Space 159.

American Steel & Wire Company, Chicago.—Right of way fences; steel fence posts; end and corner posts; steel gates; barbed wire; rail bonds; signal bonds; rubber covered wires; wire rope and fittings. Represented by L. P. Shanahan, B. H. Ryder, H. A. Squibbs, J. W. Collins, D. R. Waterman, J. W. Patterson, A. W. Froude and H. H. Febrey. Spaces 265 and 278.

American 3 Way-Luxfer Prism Company, Cicero, Ill.—Ventilating skylights; armored wire concrete skylights; sidewalk lights; sidewalk doors; **armored wire skylights.** Represented by J. J. Ohlis. Spaces 282, 283 and 284.

American Valve & Meter Company, The, Cincinnati, Ohio.—Water columns; **telescopic spout; switch stands; switch interlocker;** interlocking switch stand. Represented by J. T. McGarry, John DePinal, C. W. Stevens, D. J. Higgins and J. W. McGarry. Spaces 130, 131 and 132.

Ames Shovel and Tool Company, Boston, Mass.—Track shovels; locomotive scoops; **heat treated shovels and scoops.** Represented by S. D. Burrell, E. T. Nipher and W. H. Jenks. Space 237.

Anchor Company, Milwaukee, Wis.—Rail anchors. Represented by G. H. Chadwell and Edmund Fitzgerald. Spaces 163½ and 164.

Andrew Hoffman Mfg. Company, Chicago.—Casement windows for interlocking tower. Space 234.

Andrix Lock Nut Company, Adrian, Mich.—**Lock nuts; collapsible all-steel spade.** Represented by Harry Andrix. Space 161½.

Arcco Anti-Rail-Creeping Company, Inc., Owego, N. Y. — **Anti-rail creeper.** Represented by James R. Steele. Space 168½.

Armco Culvert & Flume Mfrs. Assn., Middletown, Ohio.—Corrugated iron culverts; **extra heavy gauge culverts.** Rerpresented by H. W. Rinearson. Spaces 99 and 100.

Atlas Portland Cement Company, Chicago.—Cement. Represented by J. P. Healy, F. J. Gardner, W. H. Abel and R. W. Meyer. Space 101.

Barrett Company, The, New York City.—Roll roofing; waterproofing material; prepared roofings; wood preservative. Represented by Frank P. Nichols. Space 236.

Barber Asphalt Company, The, Philadelphia, Pa.—**Mastic flooring; built up roofing; waterproofing asphalt and waterproofing fabric; roll roofings; shingles; roof coatings and cement; small size bituminous grade crossing.** Represented by C. O. Dowdell and W. P. Newhall. Space 163.

Baker R. & L. Company, The, Cleveland, Ohio.—Loco-

motive type industrial crane; lift truck; three wheel tractor; elevating platform truck; **auxiliary boom for locomotive trimming.** Represented by W. F. Hebard and T. W. Barnes. Spaces 205 and 210.

Balkwill Manganese Crossing Company, Cleveland, Ohio.—Manganese crossings. Represented by Stephen Balkwill. Space 116.

Bethlehem Steel Company, Inc., Bethlehem, Pa.—Switch stands; frogs; hook flange guard rail; moving pictures of switch stands and operation of twin span turntable. Represented by J. H. Budd, N. E. Salsich, G. A. Richardson, R. P. Deghuee, H. E. Stoll, R. Knibloe, J. V. Honeycutt, J. W. Stoever, W. W. Philler, M. Carroll, C. L. Moses, G. H. Riddle, W. Chapman, E. B. Allen, G. S. Vickery, C. A. Alden, E. E. Goodwillie, H. M. Stark, R. Payson, J. C. Chandler, F. M. Huffman, J. C. McLain and C. E. Owen. Spaces 70½, 71, 71½ and 72.

Blaw-Knox Company, Chicago.—Clamshell bucket; models of clamshell buckets; photos of steel buildings, steel bins; **model of an overhead crane trolley with a single line bucket, electrically operated.** Represented by G. Schirmer and T. H. Flynn. Space 89.

Brach Mfg. Company, The, Newark, N. J.—Ligthning arresters; terminal blocks; lamps; bond; ground detectors; battery jars. Represented by Godfrey Gort. Space 2.

Brown Rail Loader Company, Boston, Mass.—Rail loader; **motion pictures of rail loader in operation.** Represented by James C. Barr and William B. Joyce. Space 229 and 230.

Bryant Zinc Company, Chicago.—Railway signal materials; rectifiers; highway flashing signals; relays; autoflags. Represented by Samuel Miskelly and D. R. Day. Spaces 287, 288, 289, 290 and 291.

Buda Company, The, Harvey, Ill.—Motor cars; motor velocipedes; bumping posts; rolled steel wheels; switch stands; ball bearing jacks; ratchet jacks; car replacers; tool grinders; track drills; bonding drills; Gauges and levels; locomotive and industrial headlights; power plants; **earth drill; track liners.** Represented by R. B. Fisher. Spaces 45, 46, 47, 64, 65 and 66.

Burress Grade Crossing Protection Company, Ft. Worth, Tex.—Electric crossing gates. Represented by L. A. Kaufman, J. R. Burress, L. B. Lavell and Fred Snyder. Space 3.

Carbic Mfg. Company, Duluth, Minn.—Acetylene flare lights and generators; oxy-acetylene and cutting apparatus. Represented by R. C. Duncan. Spaces 165, 166 and 166½.

Carnegie Steel Company, Pittsburgh, Pa.—Rail joints; sections of rails; steel cross ties; pictures of manufacture of steel, rolling of rails, fabrication and heat treatment of splice bars. Represented by M. N. Hench, G. R. Schreiner and R. L. Twitchell. Spaces 268 and 275.

Carter Bloxonend Company, Kansas City, Mo.—Flooring panels; photographs. Represented by R. D. Giese, C. J. Carter, J. Thomason, J. G. Galvin, M. G. Truman, L. L. Bucklew and C. C. Wilson. Space 4.

Central Electric Company, Chicago.—Electrical supplies. Represented by G. C. Jerome, E. T. McCass, L. H. Grass, R. C. Close, J. R. Olson, L. Sisskind and J. M. Lorenz. Space 17.

Challenge Company, Batavia, Ill.—Working model of tank and tower. Represented by Frank Snow, M. J. Marcuson, Paul Elfstrom, H. E. Hansen, Walter Dickenson and R. L. Lewis. Space 109.

Chausse Oil Burner Company, Elkhart, Ind.—**Kerosene burning railway switch heaters; portable torches; machine for smoothing mastick platforms; pins and bushings for switch and signal operating mechanisms.** Represented by W. G. Chausse, and W. McK. White. Space 223.

Chicago Bridge & Iron Works, Chicago.—**Floating roof for oil tanks; conical-bottom tanks; softening plant.** Represented by Merle J. Trees, Cedric B. Smith, E. P. Shelton, Lewis McDonald, E. E. Alt, C. M. Todd and M. E. Smith. Spaces 50½ and 51.

Chicago Malleable Castings Company, Chicago.—Rail anchor tie plates; bumping posts; **brake beams; rail anchors; rail chairs.** Represented by Warren Osborn. Space 142.

Chicago Pneumatic Tool Company, New York City.—Compressors; track drills; electric and pneumatic tools and accessories. Represented by A. E. Goodhue, H. G. Barbee, J. L. Rowe, E. K. Lynch, J. V. Conway, H. R. Deubel, A. C. Andresen and F. R. Liggett. Spaces 118, 119, 137 and 138.

Chicago Railway Signal & Supply Company, Chicago.—Color light signals; relays; wig wags; crossing bells; signal forgings and fittings; **flashing light highway crossing signals; flashing light relays.** Represented by D. J. McCarthy, A. C. Dunne, C. R. Ahrens, W. C. McClintock, Carl Suhr, Clarence Rath and E. W. Vogel. Space 108½.

Chipman Chemical Engineering Co., Inc., New York City.—Chemical weed killer. Represented by R. N. Chipman and T. B. Bowman. Space 89½.

Clark Car Company, Pittsburgh, Pa.—Action photographs and blueprints of extension side dump cars. Represented by H. E. Chilcoat, W. R. Kennedy, T. B. Counselman and J. J. McGarrigle. Space 115.

Cleveland Frog & Crossing Company, Cleveland Ohio.—Represented by G. C. Lucas, Geo. Stanton, Geo. A. Peabody and J. A. Donahey. Space 90.

Cleveland Railway Supply Company, Cleveland, Ohio.—Switch stands, flangeway guards, safety foot guards. Represented by W. H. Neeson, H. P. Blum and F. A. Peck. Space 133.

Concrete Surfacing Machinery Company, The, Cincinnati, Ohio.—**Concrete surfacer and finisher; attachments for washing car windows, cars, etc.** Represented by M. Wetstein. Space 219½.

Copperweld Steel Company, Braddock, Pa.—Signal mine wire; ground rods; bond wires; cable; hangers; twisted pair. Represented by W. M. Page, W. S. Kranz, E. G. Elg and W. M. Martin, Jr. Space 13.

Crerar, Adams & Company, Chicago.—Track tools; bonding drills; jacks, and hand made handles; **power bonding drill.** Represented by Russell Wallace. Space 28.

Cullen-Friestedt Company, Chicago.—Steel crane. Represented by E. H. Batchelder, Jr., and Guy Bishop. Spaces 201 and 214.

Dearborn Chemical Company, Chicago.—**Water treatment; rust preventive.** Represented by C. M. Hoffman, E. M. Converse and O. H. Rehmeyer. Spaces 119 and 216.

Detroit Graphite Company, Detroit, Mich.—Paints. Represented by Tom R. Wyles, B. L. Maury and W. D. Waugh. Spaces 58 and 59.

Diamond State Fibre Company, Bridgeport, Pa.—Insulation for rail joints; gears; laminated insulation. Represented by L. P. McCloskey, vice-president, J. D. Rittenhouse, G. F. Swallow, Geo. Brickley, C. T. Zaoral, L. Lobdell, A. L. Sullivan and J. H. Mueller. Space 117.

Dickinson, Paul, Incorporated, Chicago.—Roof ventilators; cast iron steam exhaust heads; chimneys; stove jacks; smoke jacks. Represented by A. J. Filkins, A. E. Engman, C. W. Hansen and H. Knutson. Space 88½.

Dilworth, Porter & Company, Pittsburgh, Pa.—Spikes and tie plates. Represented by W. F. Schleiter and Joseph Dilworth. Space 27.

Duff Manufacturing Company, The, Pittsburgh, Pa.—Lifting jacks; **track jacks, double and single acting.** Represented by Charles N. Thulin. Spaces 35 and 36.

Edison Storage Battery Company, Orange, N. J.—Steel alkaline storage batteries; **"nite box."** Represented by D. C. Wilson, G. E. Stringfellow and W. F. Bauer. Space 20.

Edison, Thos. A., Inc., Bloomfield, N. J.—Highway flashers; relays; adapters for converting oil lamps to electric lamps. Represented by L. W. McChesney, R. E. Traut, P. A. Garrity, E. W. Brown, E. W. Newcomb, B. F. Hines, F. S. Stallknecht, R. J. Frost, O. P. Rose, A. J. Laughren, J. R. Brown and L. S. Dunham. Spaces 18 and 19.

Electric Storage Battery Company, The, Philadelphia, Pa.—Storage batteries; interlocking; automatic car control; automatic train control; **battery for work requiring battery of relatively low capacity but high voltage.** Represented by E. H. Watkins, H. S. C. Folk, M. C. Pope, W. H. Payne, J. D. Fischer, C. B. Wilson, H. B. Crantford, W. R. Knappenberger, H. M. Beck, C. B. McCormick, C. L. Bend, A. M. Ripley, W. H. Palmer and L. E. Lighton. Space 40.

Electric Tamper & Equipment Company, Chicago.—Electric tie tampers; portable power plants; steel wheels; power track ballasting machine. Represented by C. Jackson, H. W. Cutshall, J. G. Cartier and G. B. Wright. Spaces 204 and 211.

Elwell-Parker Electric Company, The, Cleveland, Ohio.—Storage battery electric trucks; **truck.** Represented by George W. Brown. Spaces 200 and 215.

*Engineering News-Record*, New York City—Publication. Represented by W. T. Chevalier. Space 155.

Fairbanks, Morse & Company, Chicago.—Motor cars; pumps; engines; electric motors; standpipes; wheels; scales; **motor cars.** Represented by P. H. Gilleland, W. S. Hovey, E. M. Fisher, F. M. Condit, E. E. Pendray, H. L. Hilleary, B. S. Spaulding, E. C. Golladay, C. H. Wilson, F. J. Lee, D. K. Lee, G. W. Lewis, F. C. Snyder, C. B. O'Neil, A. J. Olson, H. E. Vogel, E. J. Coverdale, J. L. Jones, E. P. Chase, R. F. Lane, G. Howard, F. V. Roy, L. R. Boyer, F. P. Drinker, J. T. Frame, J. C. Flannagan, W. F. Anderson, L. Yost, B. R. Wells, C. A. Rauch, W. L. Nies, C. G. Mahana, H. M. Beebe, L. M. Hibbs, J. E. Woods, S. G. Eaton, Wm. Dehn, L. J. Osborn, C. T. Fugitt, C. W. Laing, F. W. Miller and W. J. Legge. Spaces 73-76, 92 and 95.

Fairmont Railway Motors, Inc., Fairmont, Minn.—Section cars; heavy-duty car; inspection car; motor car engines; **section car; ball bearing engine; inspection car.** Represented by H. E. Wade, H. M. Starrett, W. F. Kasper, W. D. Brooks,

W. B. Murray, Director

L. W. Shugg, Honorary Director

H. S. Mann, Director

W. J. Gillingham, Vice-President

C. W. Kelly, Secretary-Treasurer

A. L. Greenabaum, Director

L. E. Weidman, Director

J. W. Fogg, Director

Officers of the National Railway Appliances Association

W. G. Day, I. P. Dunning, C. W. Bruel, J. T. McMahon, E. R. Mason, S. D. Gibson, L. R. Payton, M. A. Evans, J. R. Jamison and W. A. Goold. Spaces 41, 42, 43 and 44.

Fleming, J. R., & Sons Company, Scranton, Pa.—Switch point protector; **reversible protectors.** Represented by A. J. Fleming. Space 169½.

Frog, Switch & Manufacturing Company, The, Carlisle, Pa.—Manganese steel frogs; **one piece manganese steel guard rail.** Represented by A. Gordon Jones and L. E. Weidman. Spaces 51½ and 52.

General Electric Company, Schenectady, N. Y.—Rectifiers; automatic arc welding equipment; lightning arresters; signal lighting transformers; wire and cable samples. Represented by C. T. McLoughlin, Lynn Covey, F. P. Jones, J. J. Siles, C. Darticas, W. G. Ferguson, John Roberts, C. C. Bailey and H. M. Jacobs. Spaces 270, 271, 272 and 273.

General Railway Signal Company, Rochester, New York.—Color light signals; low voltage spindle type signal; switch machine; table interlocker; electric lock for mechanical interlocking; relays; transformer; track reactor; unit lever for switching yard interlockers; light signal transformer; clockwork time release; time contactor; pipe carrier; terminals; arresters; fuses; track resistances; lightning arrester; switch machine. Represented by P. E. Carter, W. D. Cloud, R. Connell, S. M. Day, C. M. Deardorff, F. L. Dodgson, J. A. Geneser, W. S. Henry, C. Henze, A. C. Holden, W. K. Howe, E. C. Larry, H. W. Lucia, F. W. Moffett, A. G. Moore, H. P. Ober, C. W. Prescott, W. H. Reichard, P. Renshaw, J. E. Stephenson, L. Thomas, H. C. Ware, S. N. Wight and J. R. Wills. Spaces 48, 49 and 50.

Godwin, W. S., Company, Inc., Baltimore, Md.—Steel paving guards; **full sized models of steel paving guards.** Represented by W. S. Godwin. Space 235.

Graver Corporation, East Chicago, Ind.—Water softeners; steel tanks. Represented by J. J. Felsecker and J. C. Winslow. Spaces 96 and 97.

Gustin-Bacon Mfg. Company, Kansas City, Mo.—**Track liner.** Represented by John W. Foyle. Space 238.

Hackmann Railway Supply Company, The, Chicago.—Track liners; rail pushers; jacks; jack plates; **combination lining bars and bases for track lining.** Represented by Frederick Hackmann and J. J. Franzen. Space 224.

Hall Switch & Signal Company, Garwood, N. J.—Light signals; crossing signals; relays; switch controllers. Represented by C. S. Harwig, T. P. Stoker, H. W. Wolff, T. J. O'Neara and W. J. Gillingham. Spaces 85, 86 and 87.

The Handlan-Buck Manufacturing Company, St. Louis, Mo.—Color light signals; classification lamps and gage lamps. Represented by T. J. Crowley, L. C. Kuehner, A. H. Handlan, E. R. Handlan and C. A. Phelps. Spaces 264 and 279.

Hayes Track Appliance Company, Richmond, Ind.—Sliding, hinged and portable derails. Represented by Edgar W. Brown, G. F. Gault, R. H. Gausepohl, Brice E. Hayes, S. W. Hayes, H. H. Jenkins, Herbert J. Mayer, Sterling P. Reid, E. L. Ruby and F. C. Stowell. Spaces 140 and 141.

Hazard Manufacturing Company, Chicago.—Insulated wire sample board. Represented by C. P. Brodhun, W. S. Hart, H. B. Pflasterer, J. E. Ham, L. W. Allen and T. A. Keefe. Spaces 21 and 22.

Headley Good Roads Company, Philadelphia, Penna.—Bituminous railroad crossing and station platform. Represented by Wm. T. Headley, F. X. Kern, W. T. Gilbert and W. F. Moore. Spaces 157, 157½ and 158.

Howlett Construction Company, Moline, Ill.—Pictures of coaling stations; **Self loading bucket.** Represented by W. E. Howlitt and Geo. B. Holmes. Space 186.

Hubbard & Company, Pittsburgh, Pa.—Shovels and track tools. Represented by J. W. Hubbard, J. V. Smith, M. Lasher, J. S. Wincratz, C. Konold and W. H. Remmell. Space 106.

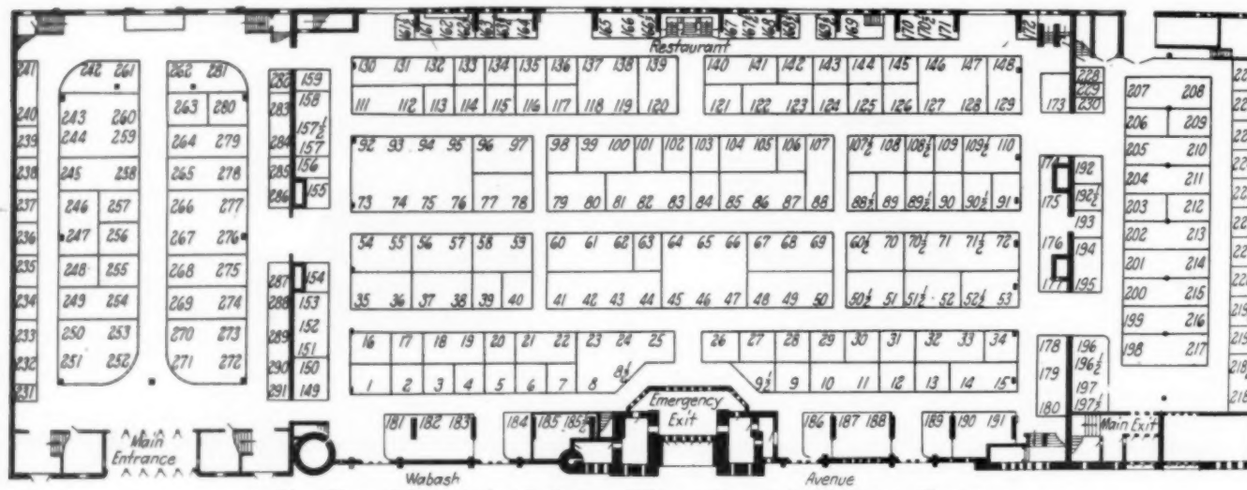
Illinois Steel Company, Chicago.—Steel wheels; spikes; screw spikes; bolts; nuts; tie plates; rail joints; angle bars. Represented by C. R. Moffatt. Spaces 269 and 274.

Ingersoll-Rand Company, New York City.—Electric and gasoline driven portable power compressors; tie tampers; air operated tools; **oil-electric locomotive.** Represented by W. H. Armstrong, E. F. Kultchar, L. W. Schnitzer, C. W. Melcher, J. P. Gillies, F. D. McDermott, T. H. Weigand, L. G. Coleman and W. L. Garrison. Spaces 206 and 208.

International Signal Company, The, New York City.—Automatic train control. Represented by Jean F. Webb, Jr., and H. Tracy Rogers. Space 114.

Jaeger Machine Company, Columbus, Ohio.—Concrete mixer. Represented by Harry Gibson, C. N. Leet, W. D. Glenn, B. J. Leet and P. W. Pylus. Space 30.

Johns-Manville, Inc., New York City.—Roofing material; building material; asbestos fibre packing; locomotive lagging; sectional insulation; refractory and insulating cement; car insulation; waterproofing; smokejacks. Represented by H. L. Leach, W. H. Lawrence, H. G. Newman, C. M. Patten, A. H. Purdon, L. Papineau, B. J. Queen, P. E. Redding, H. B. Sewell, W. T. Stewart, R. C. Simmons, A. C. Towne, J. H. Trent, F. C. Vandervort, Jr., L. S. Wilbur, W. J. Barry, M. S. Kelly, G. Nicol, P. R. Austin, W. R. Bush, H. J. Craine, C. S. Clingman, E. L. Collopy, E. E. Colburn, C. D. Solsom, H. Flanagan, W. J. Hennessy, J. D. Johnson, B. J. Jordan, J. C. Younglove and P. C. Jacobs. Spaces 174, 175, 176 and 177.




**The Floor Plan of the Coliseum Where the Appliances Are Shown**

Jordan, O. F., Company, East Chicago, Ind.—Railway spreader and ditcher with ice cutter attachment. Represented by A. L. Greenabaum and J. C. Forbes. Spaces 60, 61 and 62.

Kalamazoo Railway Supply Company, Kalamazoo, Mich.—Motor cors; electric crossing gate; track drill; pressed steel wheels; track gages; levels. Represented by F. E. McAllister, D. A. Stewart, R. E. Keller, C. R. Story, G. E. Bridge, L. W. Bates, P. J. Robischung, L. Boswell, Geo. A. Murphy and E. H. Batchelder, Jr. Spaces 23, 24, 25, 8 and 8½.

Kaustine Company, Inc., Buffalo, N. Y.—Waterless toilets; septic tank; **waterless toilet for signal towers and shanties.** Represented by D. A. Evans and Chas. F. Smale. Space 144.

Kelly-Derby Company, Inc., Chicago.—Chemical toilets; septic tanks; **wash fountain with foot control.** Represented by Harry Gibson, C. N. Leet, W. D. Glenn, B. J. Leet and P. W. Pybus. Space 29.

Kentucky Rock Asphalt Company, Louisville, Ky.—Samples of "Kyrock"; models. Represented by W. A. Brownfield and W. F. Pollard. Space 156.

Kerite Insulated Wire and Cable Co., Inc., The, New York City.—Insulated wire and cable. Represented by R. D. Brixey, B. L. Winchell, Jr., W. H. Finley, Azel Ames, J. Warren Young, J. A. Renton, P. W. Miller, J. A. Hamilton,

E. L. Adams, C. A. Reeb and C. E. Hieber. Spaces 88 and 107.

Keystone Grinder & Mfg. Company, Pittsburgh, Penna.—Tool grinder; **attachment for redressing rail cutters.** Represented by S. S. Newman and L. J. Cooney. Space 193.

Keystone Steel & Wire Company, Peoria, Ill.—Right-of-way fencing material. Represented by S. P. Distler and C. A. Kellogg. Space 263.

Layne & Bowler Company, Chicago.—Pumping plants; water supplies. Represented by Douglas Muir, W. E. Jones and Peter Bowler. Space 206.

Lehon Company, The, Chicago.—Roll roofing; cement; asphalt shingles; waterproof insulating papers; asphalt canvas; asphalt felt; asphalt saturated cotton membranes; house linings; fibre roof coating. Represented by Tom Lehon, R. M. Chissom, F. A. Locke, J. W. Shoop, J. E. Eipper and C. J. Corliss. Space 91.

Locomotive Finished Material Company, Atchison, Kan.—**Permanent highway crossing.** Represented by Clive Hastings and R. L. McIntosh. Space 143.

Lorain Steel Company, The, Johnstown, Penna.—Girder rail frog; manganese insert frogs; manganese steel wheel rim guide frog; manganese steel one-piece guard rail; expansion joint of tee rail; portion of manganese steel railroad crossing; samples of forgings; girder rails; switch stands; guard rail clamps. Represented by E. B. Entwistle, H. C. Stiff, J. A. McHugh, C. R. Bossler, J. W. Stanley, Carroll Burton, Wm. W. Kingston, Douglas P. Steward, S. J. Cotsworth, H. L. Gleeson, A. L. George, S. P. McGough, H. H. McDonald and J. G. Vance. Spaces 266, 267, 276 and 277.

Louisville Frog & Switch Company, Louisville, Ky.—**Bumping post;** adjustable solid manganese frog; switch point; casting for crossings. Represented by C. A. Boyd, E. A. Mann, T. F. Carlin, Cecil W. Stevens, T. F. Going and F. W. Carter. Space 203.

Lufkin Rule Company, Saginaw, Mich.—Tapes; rules; tools. Represented by R. M. Benjamin, A. V. Huss and S. A. McConnell. Space 121.

Lundie Engineering Corporation, The, New York City.—Tie plate; rail anchor. Represented by John Lundie, Eugene Brandeis, L. B. Armstrong, George W. Nibbe and W. Brooke Moore. Space 90½.

Lundy Company, E. A., Pittsburgh, Pa.—**Rectifiers;** fuse and line material specialties; transformers; porcelain insulators; **amperehour meters; combination fuse and disconnect.** Represented by E. A. Lundy, Preston Parish and P. M. Etters. Spaces 240 and 41.

MacRae's Blue Book Company, Chicago.—Copies of MacRae's Blue Book. Represented by Albert MacRae, Thos. H. MacRae, Lloyd Simonson, Clyde Hill, E. R. Wilson, F. O. Rice, D. N. Peirce, R. S. Jaquith and H. Deeming. Space 154.

Magnetic Signal Company, Los Angeles, Cal.—Wigwag flagmen; railway crossing signals and control apparatus; **auxiliary "out of order" signal.** Represented by H. W. Renick. Space 7.

Maintenance Equipment Company, Chicago.—Rail laying machine; derail; tie spacer, switch point straightener; steel fence posts; friction car stop; **track tools.** Represented by Emmons Overmier, J. A. Roche, H. C. Holloway, F. B. Muschott and A. L. Arnold. Spaces 194 and 195.

Massey Concrete Products Corporation, Chicago.—**Reinforced concrete cribbing;** pipe; signal foundations; battery boxes. Represented by G. H. Redding, H. W. Wilder, E. C. Alexander, W. H. Robertson, Paul Kircher, D. A. Hultgren, E. M. Hatheway, W. L. McDaniel, C. H. Hunsaker, Charles Gilman, J. A. Higgs, Jr., F. V. Shannon and P. E. Longstreet. Spaces 54 and 55.

Mechanical Manufacturing Company, The, Chicago.—Bumping posts. Represented by H. E. Johnson. Spaces 245 and 258.

Mercury Manufacturing Company, Chicago.—Tractor; trailers; **heavy duty trailer.** Represented by H. B. Cloggs, Wm. Osborn, A. D. Shanks, W. I. Lott and John R. Brosley. Spaces 202 and 213.

Metal & Thermit Corporation, New York City.—Rail welding equipment; pipe welding; sample welds. Represented by W. R. Hulbert, John B. Tinnon, C. D. Young and Henry S. Mann. Spaces 262 and 281.

Milburn Company, The, Alexander, Baltimore, Md.—Portable carbide lights; welding and cutting torches; regulators; generators; lead burners; oxyacetylene equipment; oil lights and heaters; **carbide light.** Represented by C. R. Pollard, F. G. Squires and Jack Hendricks. Spaces 161, 162 and 162½.

Miller Train Control Corp., Danville, Ill.—Train control equipment; **engine and track equipment of the P. X. and H. B. type induction.** Represented by W. B. Murray. Spaces 249 and 254.

Morden Frog & Crossing Works, Chicago.—Adjustable rail braces; guard rail clamps; manganese frogs; manganese crossing switch stands; rail braces; castings; switch adjustments; switch plates; **adjustable guard rail clamp.** Represented by W. H. Hartz. Spaces 69½ and 70.

Mudge & Company, Chicago.—Motor cars; motor car engines; trailers; centre load motor car; "roadster"; heavy duty motor car. Represented by Robert D. Sinclair, Albert C. Force and Clyde Venning. Spaces 127, 128, 146 and 147.

Murdock Mfg. & Supply Company, The, Cincinnati, Ohio.—Water service boxes; drinking fountains; hydrants. Represented by J. C. Endebrock. Space 134.

National Boiler Washing Co. of Illinois, Chicago.—Leadized pipe; welded flanges; hot water washout and filling up systems; locomotive drop pits; post cranes; syphon nozzles. Represented by Spencer Otis, F. S. Wichman, L. G. Plant, David Anderson, J. S. Maurer, Frederick A. Gale, T. G. Dalton and F. W. Gale. Space 12.

National Carbon Co., The, Inc., Cleveland, Ohio.—Signal cells and renewals; dry cells; storage cells; **center electrode caustic soda signal cells.** Represented by A. E. Pratt, D. H. Green, R. J. Cox, W. J. Emig, L. R. Griffin, J. S. Gemmell, I. T. Kelly, P. G. Pendorf, M. D. Rees, L. M. Ritchie, W. A. Sisler. Spaces 151, 152 and 153.

National Lead Company, New York City.—Lead products literature. Represented by A. H. Sabin, F. M. Hartley and Chas. Haas. Spaces 187 and 188.

National Lock Washer Company, The, Newark, N. J.—Spring washers. Represented by C. H. Loutrel, J. Howard Horn, F. B. Archibald, Stanley H. Smith, W. R. Hillary, R. L. Cairncross and W. H. Reaves. Space 192.

National Malleable and Steel Castings Company, Cleveland, Ohio.—Working models of friction draft gears; coiled spring journal box; coupler; samples of tie plates; rail braces; wedge; locks; anchors; wrecking hook; washers. Represented by T. W. Aishton, L. S. Wright, G. R. Rasmussen, F. E. Moffett, G. A. Faitz and E. A. Powell. Space 102.

National Safety Appliance Company, The, Chicago.—Working model of train control; **forestalling device.** Represented by K. E. Kellenberger, J. P. Robinson, C. C. Anthony, Ed C. Wilson, E. W. Stone and J. C. Anderson. Spaces 149 and 150.

National Vulcanized Fibre Company, Wilmington, Del.—Fibre for rail joint, switch rod, steel tie and brige insulation; **special shapes.** Represented by John Barron. Space 126.

Nelson Company, The, B. F., Minneapolis, Minn.—Roofing; insulating materials. Represented by E. A. Woodworth. Space 172.

Nichols, Geo. P., & Bros., Chicago.—Turntable tractor; model of transfer table. Represented by Geo. P. Nichols, Nicholas Fries and G. N. Shearer. Space 173.

Northwestern Motor Company, Eau Claire, Wis.—Motor cars; motor car engine; **motor car equipped with generator for operating motor driven tools; inspection motor car.** Represented by F. W. Anderson, A. H. Nelson, R. Hotchkiss, A. A. Culp, W. J. Roehl, W. Newton Jeffress and O. B. Duncan. Spaces 196 and 197.

Ogle Construction Company, Chicago.—Automatic hoist; photographs. Represented by C. F. Bledsoe, M. W. Powell and J. G. Forster. Space 31.

Ohio Brass Company, The, Mansfield, Ohio.—Porcelain insulators for power transmission circuits and signal circuits; signal bonds. Represented by J. M. Strickler, M. McCormick, W. P. Bovard, M. R. Gowing and O. M. Hollinger. Space 255.

Okonite Company, The, Passiac, N. J.—Samples of insulated wire and cable; friction and rubber tape. Represented by J. D. Underhill. Space 16.

Oxweld Railroad Service Company, The, Chicago.—Welding and cutting apparatus. Represented by F. J. Lynch, A. S. Jones, F. V. Starcher, F. S. Teichen, F. I. Duffie, F. C. Hasse, L. C. Ryan, W. H. Kofmehl, W. A. Hogan, H. W. Schulze, A. N. Lucas and E. M. Collins. Spaces 10 and 11.

P. & M. Company, The, Chicago.—Rail anti-creepers; bond wire protectors; **rail anti-creepers.** Represented by F. A. Preston. Space 122 and 123.

Page Steel & Wire Company, Bridgeport, Conn.—Bonding wire; welding wire; steel strand; highway guard; fencing; wire products; factory protection fence. Represented by W. T. Kyle, C. A. McCune, E. J. Flood and W. A. Berner. Space 84.

Patterson Company, W. W., Pittsburgh, Pa.—Tackle blocks; steamboat ratchets. Represented by W. W. Patterson, Jr. Space 145.

Pittsburgh-Des Moines Steel Company, Chicago.—**Models of sections of railway tanks.** Represented by Max Whitacre. Space 98.

Pocket List of Railroad Officials, The, New York City.—

Pocket List of Railroad Officials. Represented by B. J. Wilson, Harold A. Brown and J. Alexander Brown. Space 26.

Portland Cement Association, Chicago.—Charts; moving pictures. Represented by A. C. Irvin. Spaces 285 and 286.

Positive Rail Anchor Company, Marion, Ind.—Rail anchors; girder guard rail chairs; rail braces; malleable iron tie plates; forged guard rail plates and braces; **rail anchor.** Represented by A. H. Told, L. C. Ferguson, A. C. Moore, E. E. Griest, E. R. Borden and J. C. Shoulty. Spaces 178, 179 and 180.

Pyle-National Company, Chicago.—Motor generators and turbo generators; headlight cases; and sheet metal headlight cases; **generators for train control work.** Represented by L. H. Vilas, George E. Haas, J. J. Kennedy, Walter A. Haas and R. H. Parsons. Spaces 190 and 191.

Q. & C. Company, New York City.—Step joints; insulated joints; guard rail clamps; derails; guard rail replacers; truce posts; snow melters; **manganese guard rail.** Represented by R. J. McComb. Spaces 120 and 139.

Rail Joint Company, The, New York City—Rail joints; insulated joints; frog and switch joints; track liner. Represented by V. C. Armstrong, J. C. Barr, B. G. Braine, Alexander Chapman, E. A. Condit, Jr., C. A. Disbrow, Wm. C. Gadd, J. A. Greer, C. B. Griffin, H. C. Hickey, Chas. Jenkinson, G. H. Larson, Milton Markley, J. N. Meade, J. G. Miller, E. Muehleck, R. W. Payne, Thomas Ryan, E. F. Schermerhorn, R. R. Seward, McLeod Thomson, W. P. Thomson, F. C. Webb, G. T. Willard, Benj. Wolhaupter and D. P. Wolhaupter. Spaces 79 and 80.

Railroad Accessories Corp., New York City.—Signal and Track material; track drive; bumper plates; adjustable resistance units. Spaces 14 and 15.

Railroad Supply Company, The, Chicago.—Tie plates; highway crossing wig wag, bell and light signals; annunciators; lightning arrestors; channel pins; interlocking relays; miscellaneous signal accessories and supplies; **highway crossing light signals; flasher; time relay.** Represented by E. H. Bell, H. M. Buck, P. W. Kohnen, A. H. Smith, W. S. Boyce, M. J. Fox, Arthur H. Smith, F. J. Bullivant, R. E. Bell, R. D. Hawley. Spaces 104 and 105.

Railway Purchases and Stores, Chicago.—Publication. Represented by J. P. Murphy, Jr., and K. F. Sheeran. Space 231.

Railway Review, Chicago.—Copies of publication. Represented by Harold A. Smith, Chas. L. Bates, J. E. Gougeon, C. H. Gertner, J. A. Walsh, W. H. Dickinson, W. M. Camp and Geo. E. Boyd.

Ramapo-Ajax Corporation, Hillburn, N. Y.—Railway track material. Represented by J. B. Strong, T. E. Akers, W. C. Kidd, J. R. Davidson, P. Hoffman, J. C. Houston, D. Fairback, W. J. Fairback and G. A. Carlson. Spaces 109½ and 110.

Reade Manufacturing Company, Jersey City, N. J.—Chemical weed killer; working model of spray equipment. Represented by C. H. Reade, R. W. Pritchard, F. E. Norris and E. E. Prarie. Spaces 242 and 261.

Reliance Mfg. Company, The, Massillon, Ohio.—Nut locks. Represented by H. J. McGinn. Space 135.

Richards-Wilcox Mfg. Company, Aurora, Ill.—Door hardware; doors; sheet metal doors; door hangers; ball bearing trolleys. Represented by J. H. Wise. Spaces 170, 170½ and 171.

Rife Engine Company, New York City.—Hydraulic rams. Represented by H. T. Olsen. Space 222.

Roberts and Schaefer Company, Chicago.—**Automatic hoist; reversible skip hoist;** cinder handling plant. Represented by Clyde P. Ross, David E. White and Chas. Corwin. Space 34.

Roberts Company, The Geo. J., Dayton, Ohio.—Miniature water treating system in operation; **standard size water engine.** Represented by John C. Jamieson and H. Ostendorf. Space 136.

Robertson, H. H., Company, Pittsburgh, Pa.—Asbestos protected metal for roofing, siding and building trim; ventilators; skylights. Represented by John R. Sexton. Space 248.

Robertson, Wm., & Company, Chicago.—Cast iron sectional culvert; cinder and coal conveyors. Represented by R. F. Repasz, William Robertson and W. K. Robertson. Space 184.

Sellers Manufacturing Company, Chicago.—Wrought iron tie plates; wrought iron guard rail tie plates. Represented by J. M. Sellers, W. L. Helliwell, S. H. Smith, G. M. Hogan, R. A. VanHouten, R. J. Platt and A. F. McCoole. Space 124.

Sherwin-Williams Company, The, Cleveland, Ohio.—Enamels; cellulose lacquer enamel. Represented by C. A. Proseus, Arthur Larkin, G. A. Borwart, R. V. Goodremont and W. F. Gallinger. Space 125.

Signal Accessories Corporation, Utica, N. Y.—Signal and track appliances; **pipe carrier support; carrier side hoods; switch point block.** Represented by J. C. Edwards. Space 113.

Simmons-Boardman Publishing Company, New York City.—Railway publications; *Railway Age; Railway Engineering and Maintenance; Railway Signaling; Railway Mechanical Engineer; Railway Electrical Engineer; Maintenance of Way Cyclopedia; Boiler Maker; Marine Engineering;* **books.** Represented by L. B. Sherman, Henry Lee, C. R. Mills, Fred C. Koch, J. M. Rutherford, G. W. Daves, John G. Little, E. T. Howson, W. S. Lacher, Milburn Moore, David A. Steel, J. C. Emery, John H. Dunn, R. S. Kendrick, R. F. Duysters, H. E. McCandless and Samuel O. Dunn. Space 256.

Snow, T. W., Construction Company, Chicago.—Water cranes; tank valves; sand dryer; telltales; valve; **coaling station.** Represented by Barton S. Snow. Spaces 107½ and 108.

Southern Signal Company, Louisville, Ky.—Rail contractor; switch machine; flashing light signal; **flashing time relay.** Represented by J. E. Clough. Space 6.

Sunbeam Electric Manufacturing Company, Evansville, Ind.—Turbo-generators; locomotive headlights and accessories; **commutator turning tool.** Represented by J. H. Schroeder, W. T. Manogue and C. E. Kinnaw. Space 239.

Templeton, Kenly & Co., Ltd., Chicago.—Jacks; pole pulling and pole straightening jacks; **tie spacing shoe.** Rrepresented by E. H. Batcheld, Jr., H. B. Burlow, W. C. Cornu, C. A. Crane, Jr., J. L. Crowley, Jos. Dolar, A. E. Ferguson, H. W. Jacques, W. H. Kreer, A. C. Lewis, Geo. L. Mayer, P. H. McManus, C. R. Medland, Wm. Simpson and W. B. Templeton. Spaces 32 and 33.

Torchweld Equipment Company, Chicago.—Gas welding and cutting equipment; equipment for leadburning, decarbonizing and regulation of gases under pressure. Represented by W. A. Slack. Space 5.

Union Switch & Signal Company, Swissvale, Pa.—Two-way table lever circuit controller; color light signals; position light signals; signal mechanism; highway crossing light signal; track relay; line relay; element relay; interlocking relays; neutral relays; polar relay; flasher relay; clockwork time release; plunger lock circuit controller; switch circuit controllers; track transformer; lighting transformer; reactor; relay and terminal case; pneumatic switch and lock movement; push button machine; direct acting switch movement; **electro-mechanical interlocking machine; time release; plunger lock controller; dwarf signal; steel relay cabinets; relay terminal and instrument cases; centrifugal relay.** Represented by W. P. Allen, C. R. Beall, G. A. Blackmore, W. H. Cadwallader, Roy Clayburn, J. P. Coleman, Aaron Dean, M. L. Gray, R. M. Gilson, H. W. Griffin, J. S. Hobson, L. F. Howard, L. V. Lewis, J. L. Loucks, Geo. Marloff, W. P. Neubert, H. McCready, H. R. Sheene, W. W. Talbert and J. F. Talbert. Spaces 67, 68 and 69.

U. S. Wind Eng. & Pump Company, Batavia, Ill.—Railway tanks and water columns; valves and water supply devices; switch stands. Represented by C. E. Ward and L. E. Wolcott. Spaces 111 and 112.

Verona Tool Works, Pittsburgh, Pa.—Track tools; nut locks; rail joint springs; track circuit bonds; jacks. Represented by W. W. Glosser, W. C. Dawkins, F. B. Nimmo and D. L. Crawford. Spaces 129 and 148.

Warren Tool & Forge Company, The, Warren, Ohio.—Track tools; **chisels.** Represented by M. J. Konold and H. C. Mull. Space 9.

Waterbury Battery Company, Waterbury, Conn.—Primary batteries; renewals; parts. Represented by M. L. Martus, G. A. Nelson, S. J. Hough, O. B. Frink and G. S. Gaunt. Space 39.

Western Electric Company, Chicago.—Lamps; motors; locomotive wiring devices; flood lights. Represented by E. J. O'Donnell, Harry Gump, T. J. Rider, Jr., John O'Connor, H. C. Olmstead, Henry Vanzwoll and George Hull Porter. Spaces 77 and 78.

Western Wheeled Scraper Company, Aurora, Ill.—Working models air dump cars with extension apron; moving pictures showing dump cars in operation. Represented by John G. Beck, Jess Mossgrove and J. E. Huber. Space 63.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.—Operating demonstration of speed indicating meter and tachometer; switches; lighting reflectors; measuring meters and instruments; lightning arresters; changeover switches, gears; speed indicator; low voltage arresters; meters. Represented by C. W. Register, F. M. Hunter, A. P. Schrader, W. W. Reddie, J. T. Keech, L. A. Spangler, F. E. Omeara, P. H. Grunnagle, Charles Kerr, A. L. Atherton and R. H. Kilner. Spaces 56 and 57.

Wharton, Wm., Jr., & Company, Inc., Easton, Pa.—Rail bound frog; flange frog; gage and switch rods; dipped tooth for steam shovel. Represented by H. F. McDermott. Spaces 52½ and 53.

Wheeling Corrugating Company, Wheeling, W. Va.—Metal culverts; conductor pipe; nails; cement pails. Represented by W. J. Cook and A. N. Gibbons. Spaces 246 and 247.

Wood Conversion Company, Cloquet, Minn.—**Balsam Wool Refrigerator Car insulation.** Represented by Dean Corlette. Space 220.

Wood Shovel & Tool Company, Piqua, Ohio.—Track shovels and spades; locomotive scoops. Represented by C. L. Butts and H. L. Gilliam. Space 219.

Woolery Machine Company, Minneapolis, Minn.—**Engine for motor cars;** motor cars; weed plows; **two speed transmission.** Represented by H. E. Woolery, D. A. Woolery, C. E. Berg, G. F. Akin, C. A. Porter, T. J. Feely, Chas. Tambornino, J. T. Stephenson and B. D. McGinn. Spaces 232 and 233.

Wright Mfg. Company, Lisbon, Ohio.—Chain hoists; trolleys; trolleys with roller bearings. Represented by C. F. Wright, E. B. Low and J. B. R. Smith. Space 192½.

Wyoming Shovel Works, Wyoming, Pa.—Track shovels; locomotive scoops; picks; scuffle hoes; **machine to test track shovels.** Represented by H. T. Potter, Stanley H. Smith, E. L. Ruby and C. S. Jordan. Space 103.

Zenith Shovel Company, The, Chicago.—**Track shovels.** Represented by W. H. True. Space 221.

# National Railway Appliances Association in Annual Meeting

"THERE are very few suggestions to make and and no changes to be desired." This brief statement taken from President A. J. Filkin's remarks in opening the annual meeting of the National Railway Appliances Association yesterday morning, expresses succinctly all that needs to be said about the supply exhibit. That the business affairs of the association are in good condition was brought out clearly in the report of C. W. Kelly, secretary-treasurer, from which we abstract the following:

We have about 16,000 sq, ft. of additional space this year and that we were able to take care of all of our tangible exhibitors. However, we sold, all available space within three weeks after we opened the membership books. The asignment of space this year, did not take place as usual. Heretofore our space assignment has always been made at a meeting in November. This year owing to certain conditions it was hard to get any return even from registered mail from our supporters, and it was decided by the board to hold the space assignment on December 2. Three weeks from that time our space was entirely subscribed.

We have had perhaps, twenty inquiries—since we filled our space. This does not mean we could have had 20 more exhibitors and does not mean we could not have had 50, if we had had the space.

Since our space was filled certain changes have allowed us to take care of some new companies at a later date. There have been mergers of some concerns, which have cut down the number of our old exhibitors and have allowed us to take care of about twenty more than our normal number.

The enrollment this year has been unusually large. The representatives of the different exhibitors total something more than 500. In printing our enrollment lists this year we have incorporated the American Railway Engineering Association, and its list also is much larger than ever before. I understand from Mr. Fritch that the attendance is going to be much in excess of any of its past meetings.

The president spoke of the appearance of the exhibit. While we may take personal pride in this there is one thing we must bear in mind. We have had practically no trouble with freight or express. Our exhibitors shipped on time and with one or two exceptions have received their materials without trouble of any kind. It shows that they have found the *modus operandi* and that they are co-operating with us in such a way that we can get our show started in the small time allotted to us.

Our operations last year was in the "red' to the amount of $900. With our additional fixtures and decorations to take care of the new building this year outgo will be about $4,500 more than our income, which of course is taken care of with the smaller service that we had at hand and will leave us with our fixtures and other equipment paid for, which will be an asset, of course. While our figures show that we are in the red this year to the extent of $4,500, this does not mean we are hard up. In other words, if I may use the words of the board members in their meeting yesterday, they are very proud to "get by" with a deficit of only $4,500 after incurring about $10,000 additional expense.

There is something more I would like to say. Due to our experience this year and the conditions imposed on us, we found that for a certain period of the year we were without membership. Some of the older members on the board and those who have gone before realize that this question of when is a member not a member has always come up. That perhaps never dawned on us as seriously as it did this year. From April 30 until the time that we bill for space we have no membership. Heretofore even our board of directors, who through the kindness of their hearts paid the bills, were not members. While it is not obligatory, a resolution was passed by the board of directors at the space assignment meeting in December that we prepare our membership blanks and have them ready for you at this meeting, and that at any time between now and April 30, even at this meeting, those who care to can renew their membership. This will insure an organization membership for the coming year.

### Election of Officers

Following the secretary's report, the president called for the report of the Nominating committee, which was read by L. W. Shugg, as chairman. The report was as follows: President, J. W. Gillingham, Jr., Hall Switch & Signal Company, Garwood, N. J.; vice-president, W. B. Murray, Miller Train Control Corporation, Danville, Ill.; secretary-treasurer, W. C. Kelly, Kelly-Derby Company, Chicago; director for three years, F. M. Hartley, Jr., National Lead Company, New York City, and director for three years, M. C. Beymer, Oxweld Railroad Service Company, Chicago. A motion that the nominations be closed and that the secretary be instructed to cast a unanimous ballot for all names presented was duly seconded and carried and the officers and directors declared elected.

### W. J. Gillingham, Jr., President

The election of W. J. Gillingham, Jr., to the presidency of the National Railway Appliances Association represents his advancement from the vice-presidency after sreving three years as director. However, it involves much more than this since it marks the recognition of his participation and constructive service in this organization over a period of of many years. Mr. Gillingham has been long identified in the railway supply field through his connection with the Hall Switch & Signal Company, of which he is now vice president. He was born at Philadelphia, Pa., in 1861, and entered the service of the Pennsylvania as a machinist's apprentice in 1881. From 1884 to 1886 he was in the signal department of that property. In the latter year he became connected with the motive power departmnt of th Philadelphia, Wilmington & Baltimore, where he remained until until 1890, when he was appointed assistant signal engineer

of the Pennsylvania. Three years later he was appointed to a corresponding position on the Chicago & North Western, where he remained for a short time, when he was called to the Illinois Central as signal engineer, a position he occupied unitl 1901, when he became associated with the Hall Switch & Signal Company.

## Novel Method Introduced For Testing Motor Cars

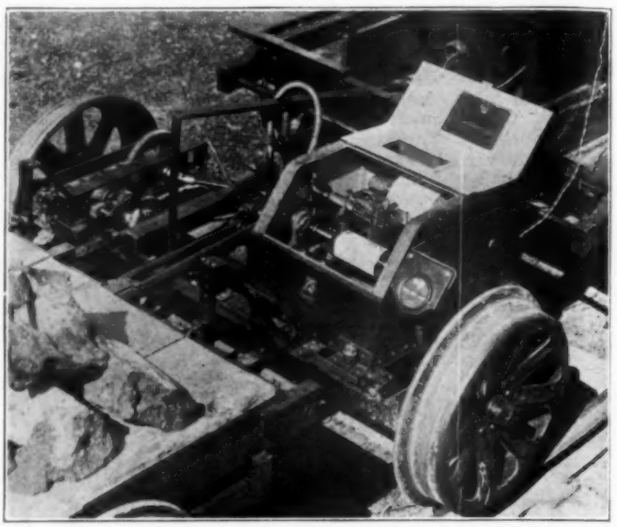
A BELIEF that the usual methods of testing motor cars, such as the pulling of loads up grade, the running of cars long distances at a predetermined speed, and the laboratory method of establishing horsepower ratings have proved far from satisfactory, particularly where cars are operated under a variety of conditions and called upon to furnish power for operating mechanical equipment, has led to the development of equipment for making studies similar to those universally applied in studying locomotive power. This equipment comprises a dynamometer and a fuel metering device, which is designed to measure and record for any make or type of car (1), the maximum draw bar effort available for starting trailers; (2), the maximum draw bar pull at all speeds; (3) the maximum draw bar horsepower at all speeds, and (4), the fuel consumption at all loads and speeds. Aside from eliminating the imperfections in prevailing methods of testing cars where the opinion of the

**The Dynamometer Car Attached to Make Speed and Fuel Tests, With the Fuel Meter Shown on the Car**

observer is a large factor in the results, this equipment claims attention also for its ability to abstract from a car, in a few hours, important information which it is impracticable to obtain by other methods.

The dynamometer comprises a steel carriage mounted on a Hyatt ball bearing equipped axle and two wheels each 20 in. in diameter. On this carriage is a recording device which is so geared to the wheels of the carriage as to cause a paper record to travel at a definite ratio to the distance covered along the track. Provision is made for the marking of 10-second intervals on this paper record by the use of a clock which transmits the time record to the paper by means of electrical attachments. Since the purpose of this device is to determine the power characteristics of the motor car, a connection is made with the motor car or trailer, as the case may be, by means of a specially designed draw bar which is an oil cylinder so designed that a continuous record of the draw bar pull which the car is operating is marked on the paper record by a special indicator.

The fuel metering device is essentially a system of graduated glass tubes for holding oil, these tubes or burettes being carried on the motor car but so connected to the recording device that the exact instant of starting

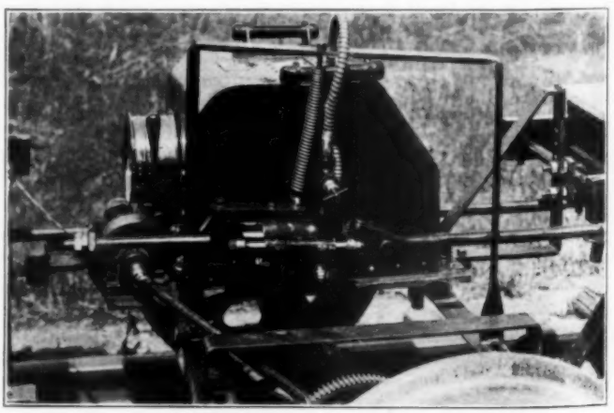


**The Dynamometer With the Cover Hinged Back to Show the Recording Cylinder**

and stopping the oil flow from each of the graduated burettes is marked on a paper record.

The measurement of the load-starting ability with this device consists simply of anchoring the load (preferably a trailer car) to the track by chain, whereupon one wheel of the dynamometer carriage is lifted off of the track slightly to permit a man to revolve it slowly to keep the paper record moving and all slack is taken out of the draw bar. At a given signal the car exerts its best efforts to start the load. This procedure furnishes the power of the car by jerking. The same process is then repeated to test the steady pull of the car.

The drawbar, horsepower and drawbar horsepower hours per gallon at various speeds are tests which are run simultaneously wherein the dynamometer records all the data necessary for computation. The method is to connect up the dynamometer between a motor car and trailer, load the motor car with its rated capacity of men and tools and employ a trailer which is equipped with a



**The Draw Bar Side of the Dynamometer Car**

brake and loaded with sufficient weight to steady its action. A level piece of track not less than 3,000 ft. long is selected and the motor car is operated over this distance, during which the throttle of the car is left wide

open and the load on the car varied by means of the brake on the trailer, which is so applied as to impose a series of predetermined speeds upon the car.

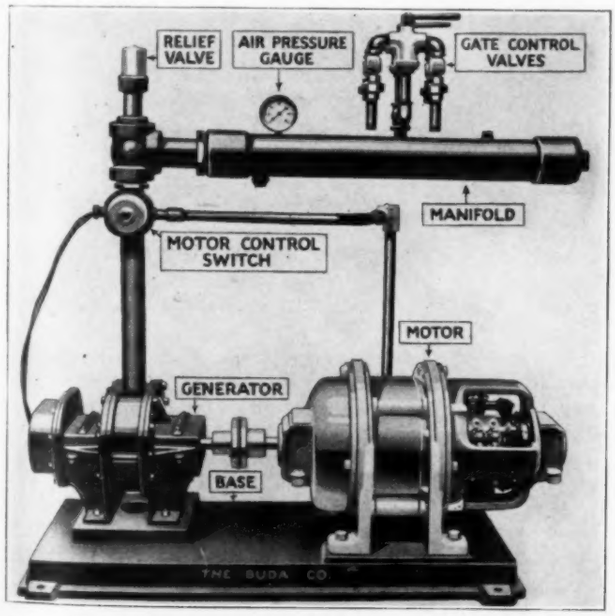
Tests can also be made to determine the number of miles per gallon the car will travel when there is no drawbar pull but only the rated load on the car. In this test the dynamometer is not used except as a recording device for the speed, distance and fuel. The speed, instead of being regulated by means of the brake on the trailer, is governed by the engine throttle, the car operator watching the speedometer closely. Runs are made at all speeds and in both directions to eliminate such factors as the effect of wind or small irregularities of the track and two runs at each speed are made to check the results. With this recorded information charts can be prepared readily which provide all the desired information for making a study of the power characteristics and fuel consumption of each car.

The dynamometer equipment is a development of the Fairmont Railway Motors, Inc., Fairmont, Minn., and has already been used in making a variety of tests on several railroads.

## A New Air Generator Set For Crossing Gate Operation

AMONG the recent developments in equipment designed specially to meet the problems of highway crossing protection is an air generator set which the Buda Company, Chicago, has introduced for installation in signal towers for raising and lowering crossing gates.

In many respects this equipment presents an innovation



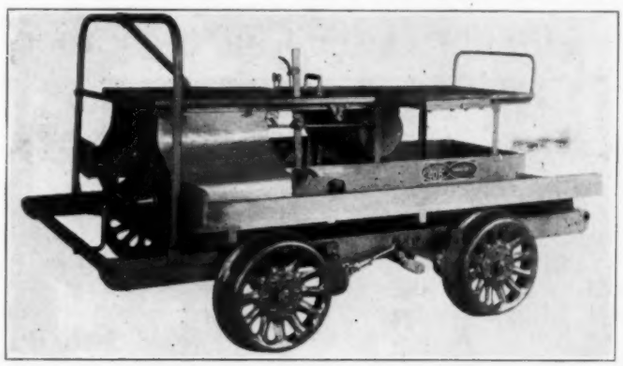

**The Buda Set as Supplied for One Crossing**

in the field of such equipment. The most apparent of these features is the total absence of the familiar air storage tanks as well as the reducing valves and control switches that are ordinarily associated with electric air compressors. The elimination of these appurtenances is chiefly responsible for the unusually small size of the set, which is only about 18 in. high. This makes it possible to install it on the floor of a tower where a hinge cover can be placed over it and used for a seat or bench, thus eliminating any necessity for providing special housing for the equipment.

The elimination of the air storage tanks or reducing valves and control switches has been accomplished by so designing the equipment that it generates air only as required. Additional advantages of this arrangement lie in the elimination of the condensation and attendant troubles during cold weather and in the production of a device that is claimed to be operated at unusually small cost. The indications are that an average power consumption of about 17 watt hours are required for raising and lowering a four post gate, which is sufficiently low that on light traffic lines the power bill usually does not exceed the minimum charge for electric current. The generator may be equipped with a motor for any available circuit.

## Improvements Made in The Sheffield Gang Car

FAIRBANKS, MORSE & C., Chicago, have developed a new motor car known as its Sheffield No. 44-B which is designed to supercede its Sheffield No. 40 heavy duty car for section and extra gang work and which embodies a number of improvements over



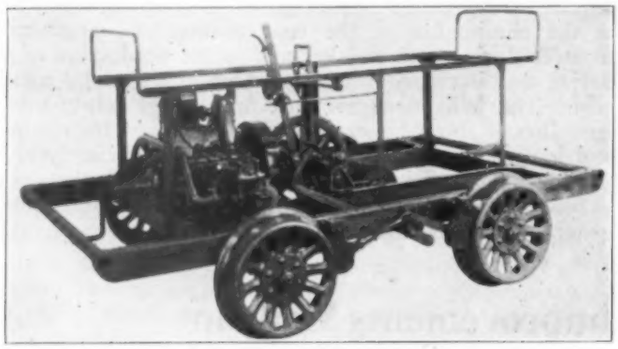
**A View of the Sheffield 44 B Car Showing the Automobile Type Frame and Extended Deck**

its predecessor. In developing this car the former car has been overhauled in most every detail with the view to deriving the benefit of recent developments in automobile engineering.

The most conspicuous improvement has been the adoption of an automobile type pressed steel frame which has the effect of giving the car more rigidity for its weight. The deck is also wider than formerly, accommodating wood trays which are carried on the steel frame and extend out over the wheels to provide additional space for tools. Probably the most important change made in the car is the refinement made in the engine and transmission through the use of much larger drive shaft and the use of Timken taper bearings to carry this shaft. Since these bearings take up angular thrust it has been possible to simplify the transmission by eliminating the Universal joint in the earlier car and carrying the friction drive disc directly on the engine shaft. This reduction of parts in the transmission has decreased the weight of the engine and transmission by 50 lb. in addition to reducing the amount of maintenance obviously required in any mechanical system where the parts are numerous.

Timken bearings have also been placed on the motor car axles to reduce the cutting of the axles. Similar to the Sheffield No. 40, this car carries a four-cycle air cooled engine of the two cylinder type which is equipped

with magneto ignition and operates on the friction disc principle with five speeds provided in each direction. The car weighs about 1,215 lb. or about the same as its predecessor. While it supercedes the Sheffield No. 40 the parts are still interchangeable to a considerable extent



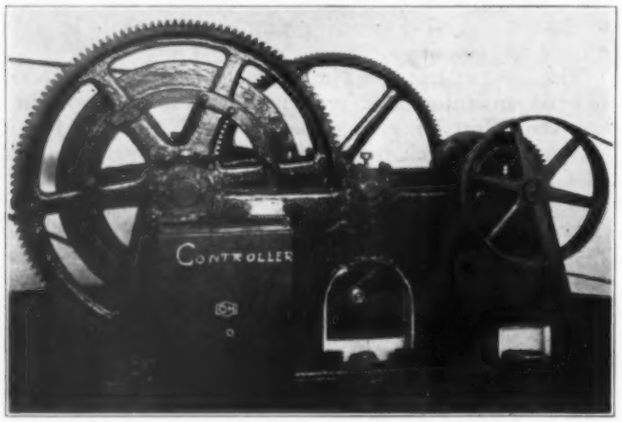
**A View of the Friction Disc Transmission**

with the old car, thus reducing to a minmum any confusion or waste that might result from inability to use the parts of the older cars in repairing the new types.

## A Simple Oil Engine Hoist for Operating Coaling Stations

THE successful development of an automatic reversible hoist for raising slip pockets in coaling plants which is equal in simplicity of parts and dependability of operation to the automatic electric hoist but which is adapted for installations where electric power is not available, is claimed by the Roberts & Schaefer Company, Chicago, for a machine called the Ross hoist which this company now includes in its mechanical equipment for such facilities.

This hoist utilizes electric power for reversing and otherwise controlling its operation but instead of deriving this electric power from the prime mover which operates the hoist it is produced by a small generator which forms an integral part of the hoist and is driven from the drive shaft of the hoist. The operation of the hoist itself is accomplished by an oil engine, the power




**A Side View of the Hoist Showing the Position of the Generator Unit**

from which is transmitted to the hoist by means of a belt running to a pulley 6 in. wide and 24 in. in diam. which is operated at a speed of 400 r.p.m. by the oil engine. Mounted on the shaft of this pulley is a sprocket engaging a silent chain which negotiates with a smaller sprocket on the drive shaft of the generator, and a two kilowatt direct current unit, which is bolted to the floor of the hoist base on the inside. This motor is driven at 1700 r.p.m.

On the main hoist drive shaft are two Cutler-Hammer magnetic clutches, of similar construction to the clutches used in industrial work, which are engaged and disengaged by means of the electric current generated by this direct current unit. The travel of the bucket is governed by a limit switch operating on the cam principle which is moved through a set of beveled gears which are also carried on the main drum shaft of the hoist, the effect of these switches being to cut out the current when the bucket is at either limit of its travel. In connection with these cam switches there is also installed a standard Cutler-Hammer electric controller with a timing relay and reversing switches for reversing the hoist, while a Cutler-Hammer magnet electric brake serves to hold the bucket load stationary when the current is cut off either when the

**An End View of the Hoist Exposing the Cam Switches**

bucket is at either limit of its travel or from other causes.

The entire arrangement of switches and magnetic clutches is such that reversing is accomplished without any reversing of the direction of the running of the driving power, which is the condition essential to the employment of an oil engine as a prime mover. As a safety precaution the drum shaft, similarly to the electrically driven hoist of the manufacturer, carries a limit switch which serves to cut out the current independently of the main control system in the event that the bucket should over-wind. In addition to this, a secondary switch is installed underneath the drum for cutting out the current and stopping the machine when the cable becomes slack. Thus equipped, a hoist is said to have been produced which affords the advantages of automatic electric equipment without being confined in its application to those installations where outside electric power is obtainable. A feature of the hoist which is advanced to illustrate the quality of workmanship is the ability to turn with the fingers of one hand the driving shaft which is coupled to the motor and which revolves the drum through the gear-reducing mechanism.